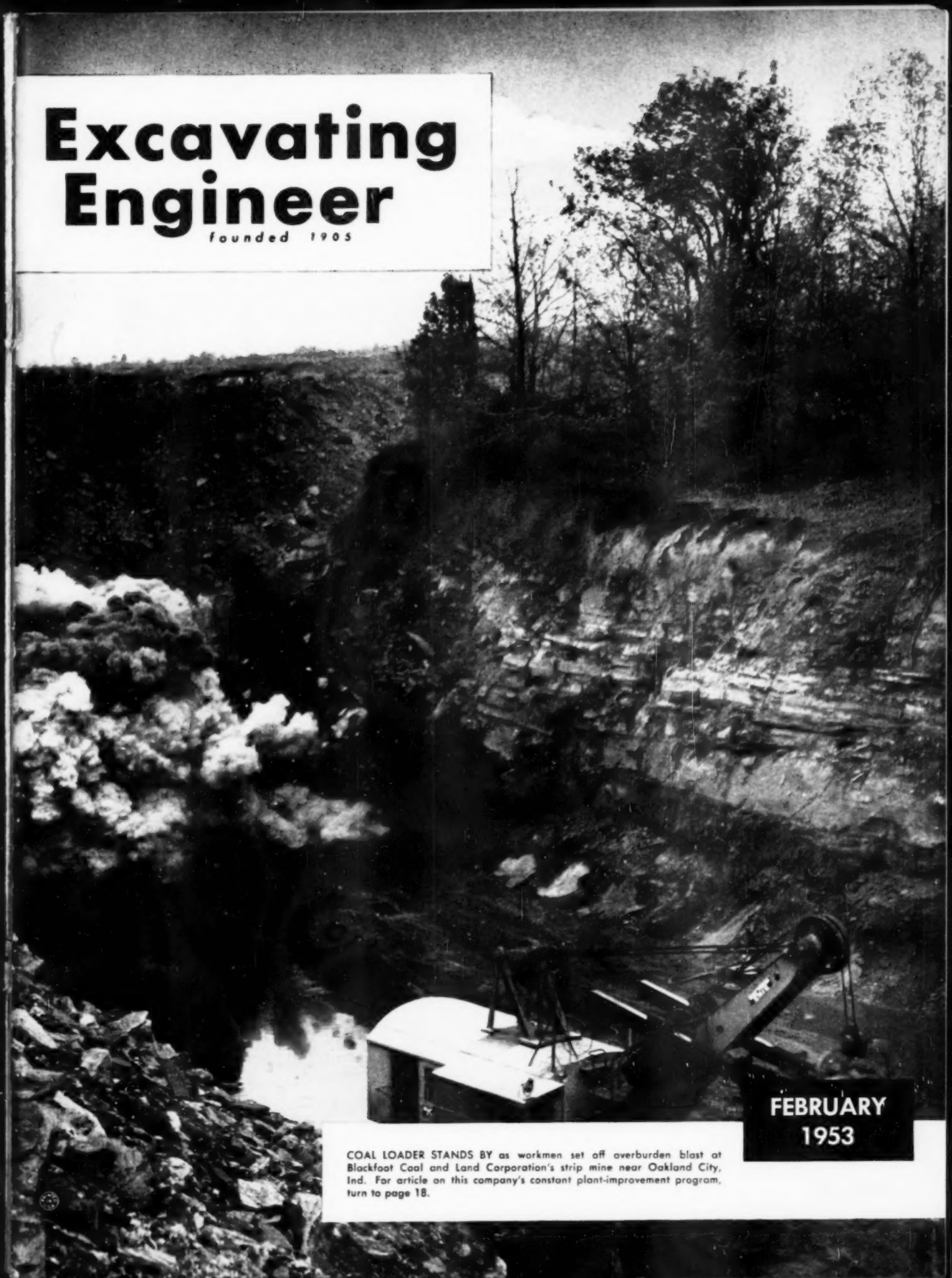
Excavating Engineer

founded 1905



FEBRUARY
1953

COAL LOADER STANDS BY as workmen set off overburden blast at Blackfoot Coal and Land Corporation's strip mine near Oakland City, Ind. For article on this company's constant plant-improvement program, turn to page 18.

Here's a Boom That REACHES For Extra Jobs

BUCYRUS ERIE HYDROCRANE

The Bucyrus-Erie 3-ton Hydrocrane with hydraulically telescoping boom reaches into windows and box cars . . . over fences . . . under beams and overhanging branches . . . between wires and rafters — without moving crane an inch! Boom extends and retracts a distance of eight feet.

The outstanding advantages of telescoping boom plus precision hydraulic control combine to make the Hydrocrane ideal for handling forms . . . pouring concrete . . . moving materials—setting steel, concrete slabs, wooden rafters — dozens of jobs.

Here is the made-to-order crane for in-between jobs — work that shouldn't tie up expensive heavy equipment, yet is too big for hand labor. Get full details. Write today for descriptive literature or see your Hydrocrane distributor. 151H52

- **Sure-Footed** — outriggers extend or retract hydraulically in seconds.
- **Speedy** — 50 mph. top highway speed.
- **Squeeze-in Specialist** — shortest tail swing of any crane, size for size.
- **"Dead Man" Control** — if operator lets go of levers, load stops dead.
- **Velvet Smooth** — all work functions powered by a cushion action hydraulic system.

● Every crane function fully hydraulic — boom hoist, load hoist, swing, boom telescope, outrigger set and retract, bucket close. Available with quickly interchangeable drag-shovel front-end.

BUCYRUS-ERIE COMPANY • South Milwaukee, Wisconsin

Built to Keep Your Jobs on Schedule

THE right kind of tires play a big part in keeping jobs moving on time—on all kinds of ground, in all kinds of weather.

That's why Goodyear builds these three great tires for off-the-road service—to give you the right tires for every need.

You can depend on these proved tires because Goodyear has built 575 million tires—more tires for more purposes than any other tire manufacturer.

Doesn't it stand to reason that the *only* tire maker with such a great fund of practical experience can speed *your* jobs, cut *your* operating costs, as Goodyear has done for so many others? Goodyear, Truck Tire Department, Akron 16, Ohio.

ALL-WEATHER
Finest for rolling big loads faster on all free-rolling wheels.

SURE-GRIP
Top tire for traction on any rig where PULL is the prime need.

HARD ROCK RIB
Super-tough champ for front wheels on all tire-killing work.

All-Weather, Sure-Grip—
T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

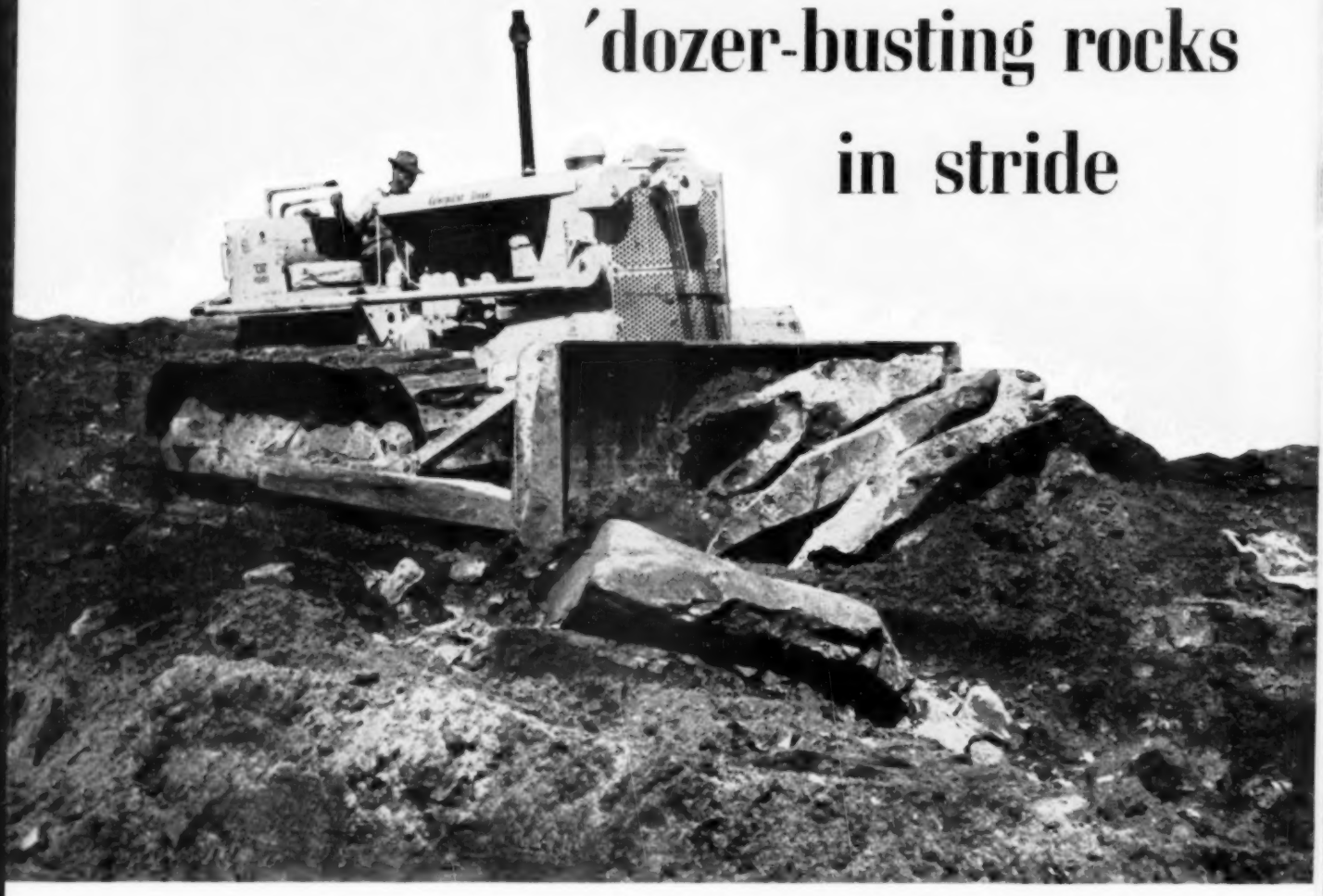
FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE!

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

We think you'll like "THE GREATEST STORY EVER TOLD"—every Sunday—ABC Radio Network—THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

New Caterpillar 8SR takes 'dozer-busting rocks in stride



Caterpillar D8 Tractor with 8SR Bulldozer gets out heavy rocks on highway construction job near Hapeville, Ga. Owner is Hugh Steele Construction Co. of Atlanta.

If rocks or other hard-to-handle materials cause high maintenance costs on your regular 'dozers, the Caterpillar 8SR Bulldozer will pay for itself. On really tough construction jobs, the strength of this new, heavy-duty Cat 'Dozer comes into its own. The 8SR can dig in and break loose large rocks, broken concrete shale, and hard clay overburden where other bulldozers fail.

Cutting edge, moldboard and blade ends are heavily reinforced, high-strength steel to resist bending and abrasion. Push arms are extra-heavy. Adjustable braces vary blade pitch for best handling of different materials. Six-line cable, on a choice of front- or rear-mounted control, runs through hardened triple-sheave block for easier blade handling.

The 8SR Bulldozer is designed to team up with the Caterpillar D8 Tractor on your roughest jobs. The ruggedness and precision of Caterpillar manufacture give long work life and low down-time. A valuable "plus" is fast, on-the-job service from your well-stocked Caterpillar Dealer. He'll be glad to tell you more about this tough new Caterpillar 'Dozer. Give him a call today.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

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Excavating Engineer

founded 1905

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For months, abandoned coal mine fire beneath Pittsburgh, Pa., hill threatened multi-million dollar Bedford housing development. Bureau of Mines directed local contractor's successful battle against blaze.

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Excuse us for not telling

Auxiliary attachments, available any time, make Tournatractor year 'round money-maker

BULLDOZER, ANGLEDOZER For dozing work, Tournatractor can be equipped any time with A-frame and electric-control 2½-yd. Bulldozer, 3-yd. Angledozer, or 11'4" x 54" Root Rake.

PUSHER PLATE, PCU With all-steel pusher plate attached to standard bumper bar, Tournatractor push-loads scrapers. Double-drum electric PCU available for operating towed equipment.

NOTE: Down-pressure attachment, blade tilt mechanism, 14-ton side-boom crane, torque converter, cab, lights also available.

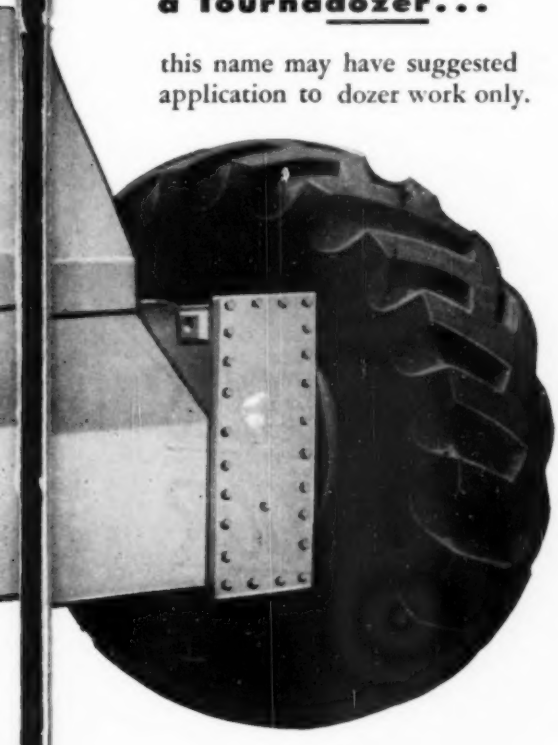
LETOURNEAU EQUIPMENT

FOR 24 YEARS THE LEADER IN RUBBER-TIRED

you!

for 6 years, we've been calling our 186 hp, 19 mph rubber-tired tractor a Tournadozer...

this name may have suggested application to dozer work only.



We should have told you otherwise. Actually, over the years, this unit has proved to be much more than a dozer.

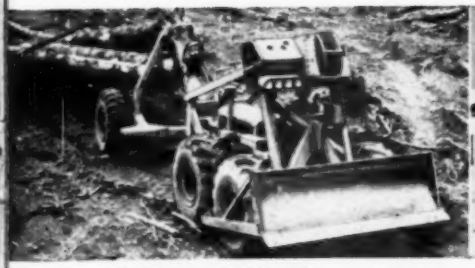
It's an all-purpose tool — just as effective as a pull-tractor, or a push-tractor, or a haul-tractor as it is a dozing-tractor. Its high speeds and fast maneuvering are of even greater advantage on hauling and pushing than on dozing where output requirements and range of operations are limited.

To clarify its many applications, we are re-naming the unit "Tournatractor". We are also revising our price lists to show our price for the tractor unit without the A-frame, blade, and blade controls, so that it will be directly comparable to crawler-tractor prices. On this basis, you will find you can buy a 4-wheel, high-speed, rubber-tired Tournatractor, FOB Longview, Texas, for only $18,840 (with 18.00 x 25 tires). You then can add the matched attachments you want.

This price structure is similar to that charged for any big, heavy-duty crawler-tractor, but look at the money-making advantages you get with Tournatractor:

1. Power . . . 186 hp.
2. Anti-friction power flow, engine to treads.
3. Speeds forward — to 19 mph.
4. Speeds reverse — to 8 mph.
5. Instant speed change . . . constant-mesh transmission.
6. Go-anywhere, 4-wheel-drive on rubber . . . wider range of work and profit opportunity . . . no planking curbs, no trailer haul.
7. Electric fingertip control steer and shift . . . easier, faster maneuvering.
8. Giant safety air brakes . . . 2822 sq. in. on 4 wheels.
9. Low maintenance . . . elimination of some 500 crawler-track assembly parts that grind and wear in dirt on crawling tractors.
10. Easier operation, less fatigue, easier to get good operators.

Investigate this rubber-tired tractor . . . it will do 85% of your tractor jobs *twice* as fast as a crawler. Ask your LeTourneau Distributor to arrange a demonstration and prove it on your job. Make your own comparison of production. You'll find the profits with Tournatractor too big to miss. Write or phone today.



67,000-LB. WINCH For skidding logs, pulling mired trucks, etc. Operates at 56 or 113 ft./min., in or out, while rig is in motion or stationary. Can pull from any angle up to 90°.

SNOW PLOW V-type. Mounts on same A-frame as Bulldozer or Angledozer. Has 12'4" clearing width, 6½' clearing height. 9' electric-control Snow Wing available as optional equipment.

FOR SCRAPER OPERATION Double electric PCU operates any cable-controlled scraper. For LeTourneau electric scraper, optional electric jack can replace PCU. Just "plug in" and go to work.

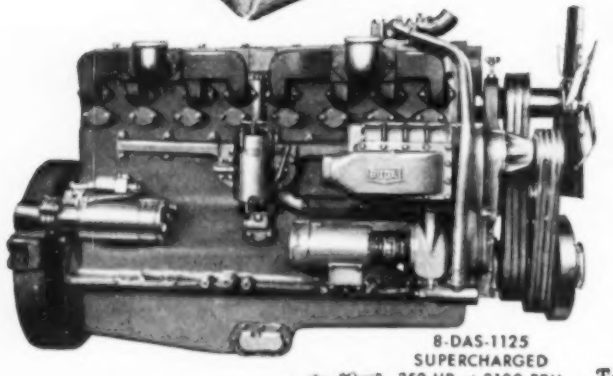
Tournatractor—Trademark Tournadozer, Angledozer—Trademark Reg. U. S. Pat. Off. T-313-G

DIRTMOVING

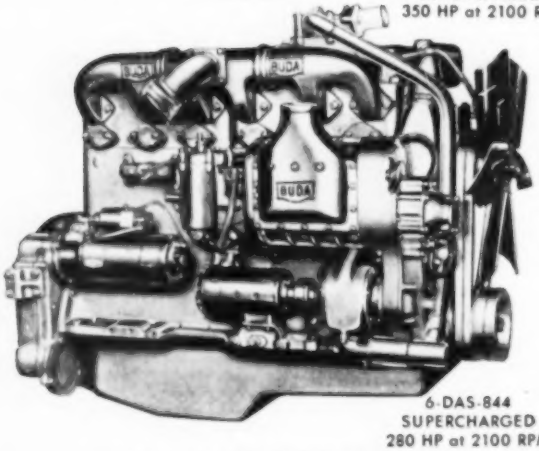
R. G. LeTOURNEAU, INC.

Peoria, Illinois

6-DA-779
185 HP at 2100 RPM



8-DAS-1125
SUPERCHARGED
350 HP at 2100 RPM



6-DAS-844
SUPERCHARGED
280 HP at 2100 RPM

pick BUDA DIESELS and be SURE YOUR EQUIPMENT PAYS A PROFIT

Take all the luck you can get . . . but be *sure* your power is right. Pick Buda Diesels for shovels, wagons, scrapers, dozers and trucks and you can count on lower operating costs, less maintenance and less downtime.

Buda engines are heavy-duty built with a reserve of power for extra load requirements . . . are carefully engineered with higher torque at proper speeds to give ideal working performance . . . and are precision designed and performance-proved to give long life (6000 hrs. average) operation between overhauls.

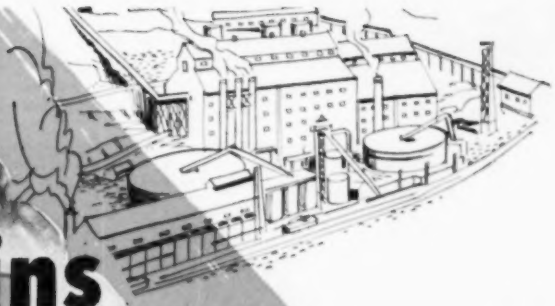
Ask your nearby Buda Engine Distributor to give you complete details. Write for Bulletins and data.
The Buda Company, Harvey, Illinois. BC-21

...there is a BUDA DIESEL for every need

BUDA

Manufacturers of Diesel and Gasoline Engines, Maintenance of Way Products, Lifting Jacks, Earth Drills and Material Handling Equipment

Amsco Chains Get Tougher With Use



How AMSCO Manganese Steel Chains Acquire Progressively Greater Resistance to Impact and Abrasion.

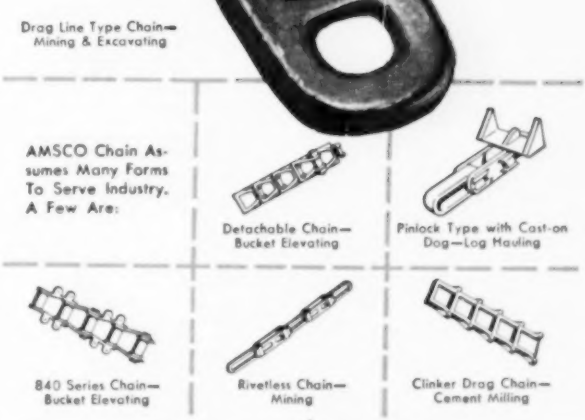
Actual case histories prove that AMSCO Manganese Chains outlast ordinary chains by more than 6 to 1 where impact and abrasion exist. For example, on one conveyor operation, ordinary chain had to be completely replaced every three months. When AMSCO Manganese Steel Chain was installed, only a small fraction of the links were replaced during a test period of over 24 months.

Users of AMSCO Chains benefit by unusual freedom from expensive chain replacement, breakage, maintenance-down-time and other problems caused by impact and abrasion conditions.

AMSCO Manganese Steel Chains have the unique ability to work-harden with use. In rough service, they develop a surface hardness up to 500 Brinell. They also acquire a hard glass-like polish that helps shrug off grinding abrasion. All AMSCO Manganese Steel products — tough when produced — possess the extra-value quality of actually increasing durability with in-use battering and grinding.

AMSCO Chains are made of Manganese Steel —the "Toughest Steel Known." They are produced in many standard and special shapes by American Manganese Steel Division—largest producer of manganese steel for all industry.

If you use chain, and desire a more durable alloy, you are invited to contact AMSCO. There's a good chance we can save you money and provide chains that will outlast your service life expectations.


Drag Line Type Chain—Mining & Excavating
AMSCO Chain Assumes Many Forms To Serve Industry. A Few Are:
Detachable Chain—Bucket Elevating
Pinlock Type with Cast-on Dog—Log Hauling
840 Series Chain—Bucket Elevating
Rivetless Chain—Mining
Clinker Drag Chain—Cement Milling

AMERICAN Brake Shoe COMPANY

AMERICAN MANGANESE STEEL DIVISION

373 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que.
Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

150-ft. spud barge *A. H. Stall*, with its Cooper-Bessemer-powered Bucyrus-Erie 200-W dragline, is owned and operated by J. Ray McDermott & Co., Harvey, La., and has been in highly successful use on various excavating jobs since January 1951. On this operation the unit is swinging a 6-yd. clamshell bucket on a specially extended 140-ft. boom.

THIS big barge-mounted Bucyrus-Erie dragline, Cooper-Bessemer-powered, is working month after month, 24 hours a day in the swamplands below New Orleans. Here, with this machine, J. Ray McDermott & Company is moving almost 3 million yards of muck to build an endless levee for two huge fresh water reservoirs. In turn, these reservoirs will store millions of gallons of fresh Mississippi water for the mining of sulphur in a vast new dome beneath the marshes.

The levee will be 6 miles long, 100 feet wide at the base, and 12 feet high with a 10-ft. crown — an 8- or 9-month excavating job! And on a big, hard-to-reach job like this you soon learn the *extra* value of diesel power you can count on for continuous, trouble-free performance.

Cooper-Bessemer diesels are designed for all kinds of service. They're your best bet when it comes to heavy-duty power.

The Cooper-Bessemer Corporation

MOUNT VERNON, OHIO — GROVE CITY, PENNA.

New York Washington, D. C. Bradford, Pa. San Francisco Houston, Dallas, Greggton, Pampa and Odessa, Texas Seattle Tulsa Shreveport St. Louis Los Angeles Chicago Caracas, Venezuela Cooper-Bessemer of Canada, Ltd., Halifax, Nova Scotia Gloucester, Mass. New Orleans, La.

Euclid 15.5 cu. yd. Scraper hauls load out of wet, spongy borrow pit near East Pembroke.

Bottom-Dump "Euc" receives a heaping payload of 15 cu. yds. from a Euclid Loader in 40 seconds near Montezuma, N. Y.

"Eucs"

SPEED GRADING ON NEW YORK THRUWAY

Contractors working on the New York State Thruway depend on Euclids to get the job done on schedule. There are already about 135 "Eucs" on this 535-mile project, which requires the moving of approximately 80,000,000 cu. yds. of earth and rock. The Thruway is scheduled for completion in 1954.

All types of Euclid equipment—Scrapers, Bottom-Dumps, Rear-Dumps and Loaders—are speeding the grading on this job... hauling bigger loads, faster, and at low cost... providing dependable service at low maintenance cost under the toughest conditions.

Here, as on the building of many highways, dams, airports, levees, and other major earth moving jobs, you'll find the large capacity, high speed and job availability of "Eucs" paying off for owners.

Working near Schenectady, this "Euc" is dumping 15 tons of fill material.

The EUCLID ROAD MACHINERY Co.
CLEVELAND 17, OHIO
CABLE ADDRESS, YUKLID. CODE: BENTLEY

EUCLIDS *Move the Earth*

How Allis-Chalmers MOTOR SCRAPERS Help Cut Cost per Yard

Positive, forced ejection . . . eliminates wasteful circling or other time-consuming methods of removing the load. Allis-Chalmers' patented forced-ejection system plus high apron lift *bulldozes* dirt out of the bowl fast every trip . . . without extra wear and tear on power control unit cables and clutches.

Easy operation. From foam rubber seat to finger-tip control, shock-free hydraulic steering and full visibility, a TS-300 operator has every available help for safe, sure, speedy work. Balanced weight distribution and low center of gravity make A-C MOTOR SCRAPERS easy to maneuver even at top speed.

Faster, easier loading . . . because A-C MOTOR SCRAPERS have up to 20 hp. to handle every struck yard . . . plus offset cutting edges and "center-boiling" loading action that spills the dirt evenly, filling corner voids for full capacity loads.

High-speed hauling. The power behind the TS-300 teams up with big, traction-type tires that gear it to the road . . . move capacity loads at 22.5 mph. And operating clearance of 20 in. helps keep it from hanging up on rutted haul roads.

by Cutting Time per Yard

A dirt-moving "package" that makes every second count. The powerful HD-20 torque converter tractor is an ideal teammate for the TS-300. It synchronizes to scraper speed at contact . . . automatically loads at fastest speed conditions permit with less strain on operator and equipment . . . gives scraper an extra fast start to the fill.

Your nearby A-C dealer will be glad to give you more yardage-boosting facts about job-tested, *job-proved* MOTOR SCRAPERS. He can also tell you where you can see them at work and talk to the men who own and operate them. You owe it to yourself to call or stop in soon.

TS-300 MOTOR SCRAPER
14 cu. yd. struck capacity
18 cu. yd. heaped capacity
280 hp. Buda diesel or
275 hp. Cummins diesel

TS-200 MOTOR SCRAPER
10 cu. yd. struck capacity
13 cu. yd. heaped capacity
176 hp. Buda diesel or
165 hp. Cummins diesel

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

THE FINEST LINE ON EARTH

"The enthusiastic response of our employees . . ."

ALDEN G. ROACH
President, Columbia-Geneva Steel Division and Consolidated Western Steel Division, United States Steel Corporation

"It is most gratifying to me that the employees of the Columbia-Geneva Steel Division and the Consolidated Western Steel Division of United States Steel Corporation have accorded meaning to their belief that the security of our nation rests upon our cooperative effort. The enthusiastic response of our employees made me doubly glad we conducted a person-to-person canvass for the Payroll Savings Plan for U. S. Defense Bonds."

The experience of Columbia-Geneva and Consolidated Western Divisions of United States Steel Corporation is not an isolated one.

Since January 1, 1951, hundreds and hundreds of companies have conducted person-to-person canvasses of their plants and offices. In every instance, employee participation in the Payroll Savings Plan has increased—sometimes from a low figure—to 60, 70, 80%. In a number of plants, participation passed the 90% mark.

The explanation is simple.

Employees *want* to provide for their future security.

Given an opportunity to enroll in the Payroll Savings Plan they respond immediately—as evidenced by the fact that more than 2,000,000 men and women have joined the Payroll Savings Plan since January 1, 1951.

The monthly take-home savings of the 7,500,000 now in the Payroll Savings Plan totals $150,000,000 per month—and growing rapidly.

As a step toward *your* personal security, and the security of your associates, bring this page to the attention of your top executive. Tell him that—

- a person-to-person canvass of your plant can be conducted without pressure, prize awards or other stimulation. (In many plants, employee organizations have undertaken the actual distribution of Payroll Savings Application Blanks.)
- The Savings Bond Division, U. S. Treasury Department, Suite 700, Washington Building, Washington, D. C., will gladly help your company with suggestions, posters, envelope stuffers and other aids.

The U.S. Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.

Excavating Engineer

NO BUGS! NO ORPHAN MODELS!
What's "new" in other compressors, Jaeger has built for 5 years

If you plan to buy a portable compressor, you now have 3 kinds to choose from:

1: Machines that still cling to the 20-year old ratings of 60, 105, 160, 210 and 315 ft., and are too small to run today's air tools efficiently.

2: New models offering, for the first time, the higher ratings which today's tools require.

3: Jaeger "Air Plus" Compressors which originated these higher ratings 5 years ago and guarantee them with the proved performance of more than 30,000 "new standard" compressors in the field.

No other compressors, new or old, yet give you Jaeger's features:

Balanced W-type 2-stage compressor in every size from 75 to 600 ft.

75% to 100% larger valves than in older type machines.

Positive lubrication by gear driven oil pump, standard in all models.

Bigger intercoolers and air receivers. Relief valve for automatic drainage standard in all models.

Bigger engines operated at conservative speeds, and bigger multiplate clutches than on any other compressors.

"Fuel Miser" control standard on all models where automatic regulation of engine speed means worthwhile fuel savings.

Lowest cost compressed air you can buy:

Prices of Jaeger compressors are, in every case, lower than those being asked for old standard compressors. Your cost per cu. ft. of air is many dollars lower because a Jaeger delivers 15% to 25% more air. And with this added air holding 90 to 100 lbs. pressure at the tools, instead of mere 70 lbs., you get 30% to 40% more production *with the same men and tools.*

Ask your Jaeger distributor to prove this. Or send for Catalog JC-1, which gives full data on compressors, tools and their air requirements — facts not published in any other catalog.

Jaeger Model 75 — the first compressor to operate one heavy pavement breaker efficiently.

Jaeger Model 125 — (illustrated) the first compressor to operate 2 heavy pavement breakers efficiently.

Jaeger Model 185 — the first compressor to operate 3 heavy pavement breakers efficiently.

Jaeger Model 250 — the first compressor to operate a 3½" wagon drill or 2 heavy rock drills efficiently.

Jaeger Model 365 — (illustrated) the first compressor to operate a ¾" nozzle sand blaster efficiently. Can also run a 4" wagon drill at full pressure with air to spare for plug-hole drilling.

Jaeger Model 600 — the first compressor to operate two 4" wagon drills or a 9B-3 heavy pile hammer efficiently. (Introduced in 1946, when all others built 500 ft. compressors.)

THE JAEGER MACHINE COMPANY

553 Dublin Avenue, Columbus 16, Ohio

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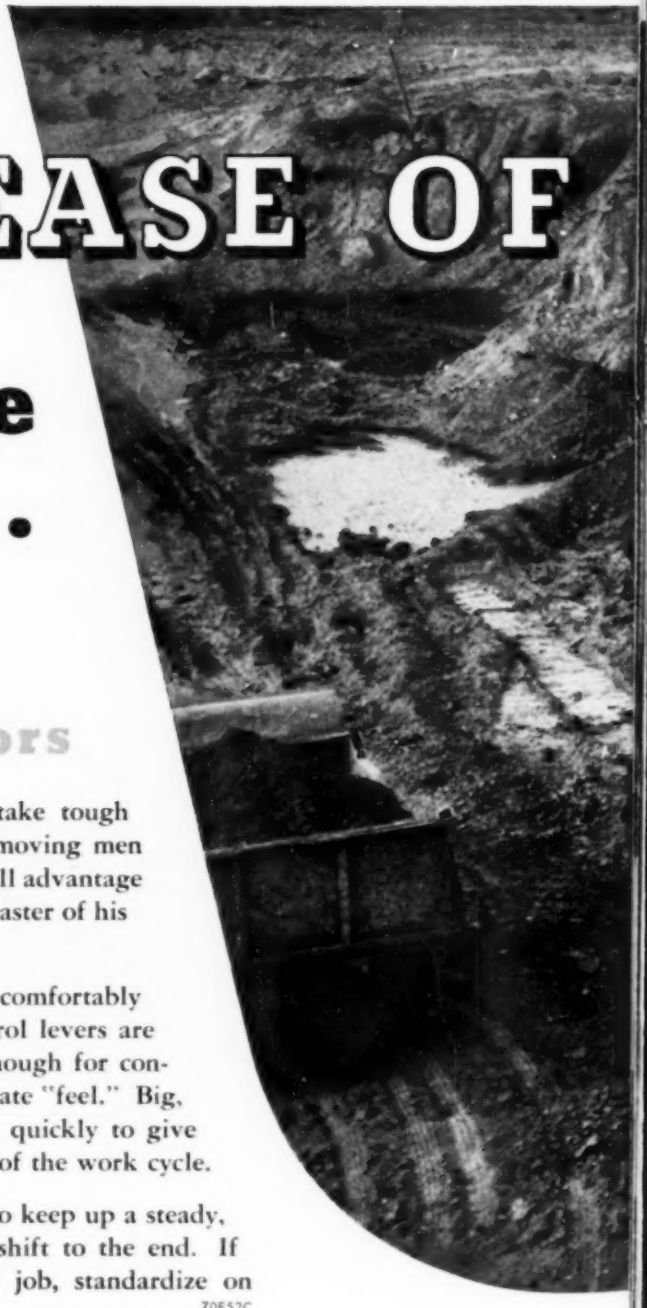

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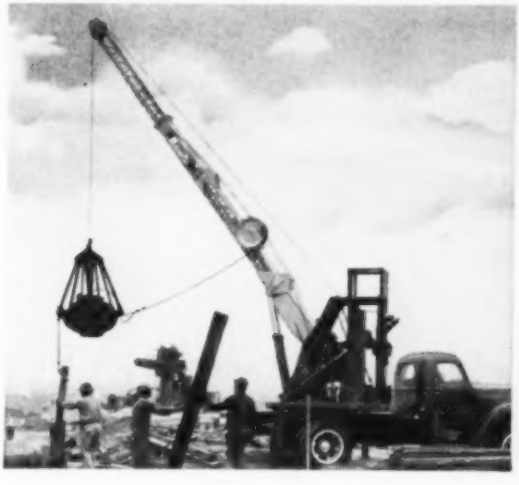

Excavating Engineer
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Blackfoot's Planning Leads to Top Output

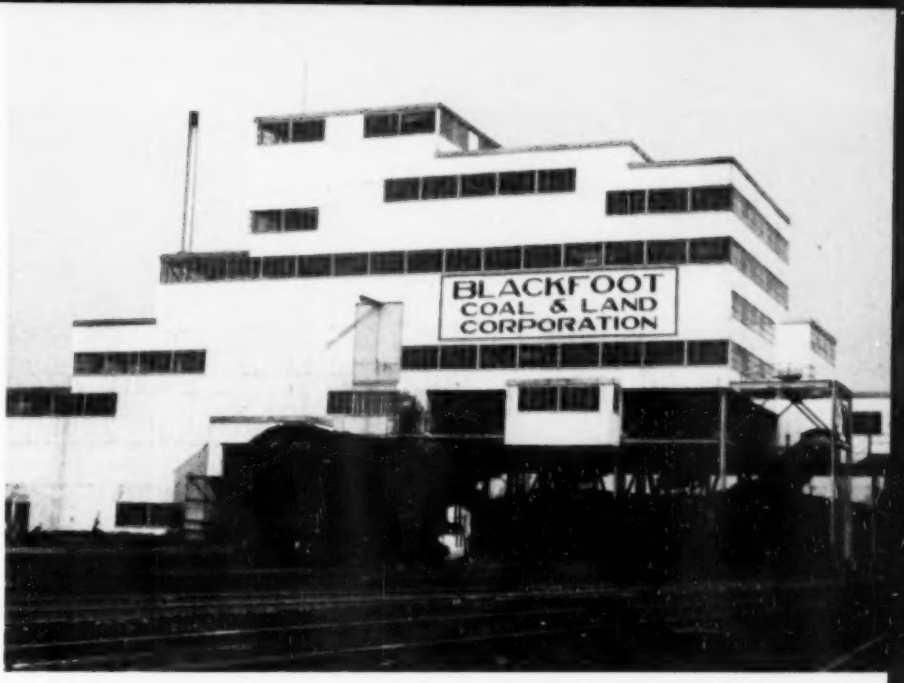
Led by a 21-yd. shovel which has removed 50 million yards of overburden in the past 10 years, this soft coal mine is winding up a long range mechanization program which has geared production to an average rate of 3000 tons of processed coal daily.

OPEN-CAST stripping operations at the Blackfoot bituminous mine in southern Indiana have been going on for 27 years in which time more than 14 million tons of coal have been recovered. Yet, despite this high production in the past, the future holds even more promise.

Here, 12 miles southeast of Oakland City in Pike County, the Blackfoot Coal and Land Corp., Evansville, Ind., inaugurated a long range mechanization program in 1940. Today this program is nearly completed, having gear-

ed Blackfoot to produce an average 3000 tons of processed coal daily. This high production, plus the fact that surveys show approximately 20 million tons are still scheduled for recovery make it easy to understand that large scale strip mining operations are in order at this Indiana open pit for at least the next 25 years.

Major factors making this high production possible are a 21-yd. stripping shovel, 20-ton and 30-ton tractor-semi trailers, and a multimillion dollar tipple—equipment highlights of the mechanization program. In addition to these, many other additions and changes were made all along the line, from pit to tipple, so that the Blackfoot mine is now a far cry from what it was in the first quarter of the century when operations were begun with steam-powered stripping equipment and track haulage.



• Near Oakland City, Ind., this modern, multi-million dollar tipple rises over Blackfoot Coal and Land Corporation's siding.

Today, stripping operations are paced by a 21-yd. Bucyrus-Erie 550-B electric stripping shovel which has removed more than 50 million yards of overburden in slightly over 10 years' time. The 550-B, together with a 5-yd. Bucyrus-Erie 5-W Diesel walking dragline work three 8-hour shifts daily, stripping 600,000 yards a month — 80% of this total being handled by the stripping shovel.

Coal is uncovered from large deposits known as "islands." These "islands" appear in the ridges of hills at scattered locations throughout the area, having been formed by stream and weathering action, which, through the years has displaced the seam in this manner.

At the time we visited this operation, the stripping units were busy spoil casting overburden at two different locations in what is known as the Fantod Field. This field—one of the largest in the area—has yielded some 2.4 million tons in the time it has been worked and another 1.7 million tons still remain.

Recovering this coal seam, which is Indiana No. 5, involves the removal of overburden that averages 35 feet in depth, ranging between eight and 65 feet. This overburden covers a seam which runs 45 to 60 inches in thickness, averaging 48 inches. This coal has a usual 12,000 BTU content and its hardness is normal to Indiana No. 5. A considerable amount of Indiana No. 4 seam, which lies an average 110 feet below No. 5, crops out on the property and these deposits are to be mined in the near future.

• In 10 years, the 21-yd. Bucyrus-Erie 550-B stripping shovel removed more than 50 million yards of overburden.

The method employed when stripping the "islands" is to work inward from the crop out line, spoil casting overburden into the outward perimeter. The usual pattern employed in the case of the stripping shovel, which is equipped with a 95-ft. boom and a 56½-ft. dipper handle, is to make the first cut 85 feet wide. From the seam that's exposed as a result of this cut, 45 feet of coal are loaded, leaving a 40-ft. berm for haulage. Succeeding cuts run parallel to the first and follow the "island's" contour. They are made just as wide as depth of overburden will allow—decreasing in width as overburden depth increases and vice versa. These cuts are usually made 45 feet wide so that a haulage berm of about 35 feet can be maintained.

With the dragline, which swings a 120-ft. boom, the first cut is made 60 feet wide. Forty-two feet of coal are loaded from the exposed seam, leaving 18 feet of berm for haulage. Following cuts are generally made 35 feet in width so that this amount of coal can be loaded and still maintain an 18-ft. haulage berm. However, the widths of these cuts, as well as those excavated by the stripping shovel, depend on the overburden encountered.

As a rule, two pits are operated simultaneously at Blackfoot. The

• Picture shows overburden brought down by blast shown on cover of this issue. Stripper boom may be seen just around bend in seam.

larger pit is equipped with electric power purchased from and supplied by the Southern Indiana Gas & Electric Co., and is the pit in which the 550-B is employed. In the smaller pit, or where overburden is comparatively shallow, the 5-W handles the stripping assignment. The ratio of overburden removed to coal recovered at the time of this visit was 8:1 in the electric pit and 5:1 in the dragline pit. The ratio of 8:1 is considered average and 20:1 the maximum.

Preparation of overburden is a big item for a charge is normally set off in each pit daily.

The drilling pattern is essentially the same in both pits with 6-in. horizontal holes drilled an average 40 feet into the face of the highwall. These holes are normally spaced 18 feet apart and started at a point four feet above the seam. When formations of unusual hardness are met, the practice is to decrease the space between the holes to 12 feet. The similarity of drilling pattern between the two pits varies in the case of the electric pit when the depth of the highwall runs in the neighborhood of 60 feet. The practice then is to drill every other hole upward on a 30° angle. These holes are started at a point six feet above the seam and are drilled to end at a point 15 feet higher than the neighboring horizontal holes.

Loading and Blasting

Blast holes are drilled two shifts daily in the electric pit by a crawler-mounted Sullivan horizontal electric drill, and one shift daily in the dragline pit by a gasoline-powered Hardsog horizontal drill. An average of seven 40-ft. holes are drilled a shift per drill. Hardsog drilling bits are used.

• A three-acre reservoir contains sludge from the tipple. A 6-in. pipeline carries the sludge 3600 feet to the pool.

• The Bucyrus-Erie 85-B shovel takes a 5-yd. bite out of the seam. Machine loads behind the 550-B stripper with a special coal dipper.

During the first shift, hole loading and blasting takes place. An average 16 to 18 holes are set off at a time with 5x24-in. cartridges of carbon black soaked with Airmite liquid-oxygen used as the explosive. An average nine cartridges or 155 pounds of explosives are placed in each hole. DuPont No. 6 electric blasting caps and a DuPont firing machine are the detonators. Fragmentation is good and no secondary drilling is necessary. However, when extremely hard formations are encountered in the dragline pit, the holes are loaded with more than a normal charge to handle rock fragments more easily with the dragline bucket.

Working with the 550-B is a UD-9 Hough Payloader and a 5-yd. Bucyrus-Erie 85-B electric loading shovel, equipped with a 30-ft. boom and a 20-ft. dipper stick. It's the job of the Payloader to clean the surface of the seam before the coal is loaded. During a 6¾-hour shift, the 85-B will load an average 2750 tons of raw coal. Auxiliary to the dragline are a Bucyrus-Erie TD-14 Bullgrader, which handles the seam cleaning operation, and a 2¼-yd. Marion 362 Diesel loading shovel. Equipped with 24-ft. 8-in. boom and an 18-ft. 10-in. dipper stick, the Marion will load an average 1100 tons of coal daily.

Seam preparation ordinarily doesn't involve blasting since the charges set off in overburden preparation sufficiently loosen the coal for loading in most cases. However, coal uncovered from the crop line cut requires blasting prior

• A VD-9 Hough Payloader cleans the seam surface. It works ahead of loading shovel.

• Heated garage can admit 10 tractor-trailers at a time. Adjacent storeroom stocks 10,000 parts.

to loading since no overburden preparation is made in stripping this.

Two vertical Hardsog coal drills, one electric and the other gasoline-powered, drill 2¼-in. holes in seam preparation. These holes are drilled the thickness of the seam and spaced eight feet apart, the same as the rows. Into each hole, a minimum of one 1¾x8-in. powder cartridge is placed and a maximum 8x8x4-ft. area is broken at one time. The cartridges are manufactured by the U. S. Powder Co.

Five W-4042 International trucks powered by 200-hp. Diesel engines and equipped with 40-yd. United Iron Works bottom dump semi-trailers service the 5-yd. loading shovel. Hauling the coal loaded by the Marion is the job of three International KE-11 trucks powered by 185-hp gasoline motors and equipped with 25-yd. bottom dump Austin-Weston semi-trailers. A W-4042 will haul approximately 550 tons of raw coal per shift while a KE-11 will handle about 400 raw tons in the same time.

Haulage is considered one of the most important aspects of the coal stripping operation at this mine. It's the policy to keep loaders well supplied with trucks so that there won't be any delays in this operation. Loading and haulage are handled during one 6¾-hour shift daily.

Delivering raw coal from the pit to the tipple is done over haulage roads which are kept in A-1 condition. Every day the tipple is in operation, a crew of at least two men are kept busy on road maintenance, either filling in low spots by hand, leveling areas by dragging, or sprinkling down with a F-8 Ford truck equipped with a 2500-gal.

• Behind the walking dragline stripper, a 2¼-yd. Diesel shovel loads coal. Overburden is shallower here.

capacity tank. A small Galion road scraper is also used in connection with this work. Blackfoot tries to maintain load grades not over 3% and empty grades not over 5% to permit speedy haulage. This shows up, for example, in that the 32-ton units working in the electric pit, 1¼ miles from the tipple, make a complete round trip in 30 minutes, averaging 18 mph when loaded and 22 mph when empty. About five miles of haulage roads are maintained.

The base of these roads is made up of 2½ to 3 feet of tipple refuse called gob. After this gob has been sufficiently packed, a 2-in. layer of No. 5 limestone is added to provide the finish surface. When new roads are built, a variety of equipment is available for this purpose. They include: the 5-W walking dragline, the Bucyrus-Erie TD-14 bulldozers, a D6 Caterpillar tractor, and an Allis-Chalmers D-14 bulldozer equipped to pull an 8-yd. LeTourneau scraper.

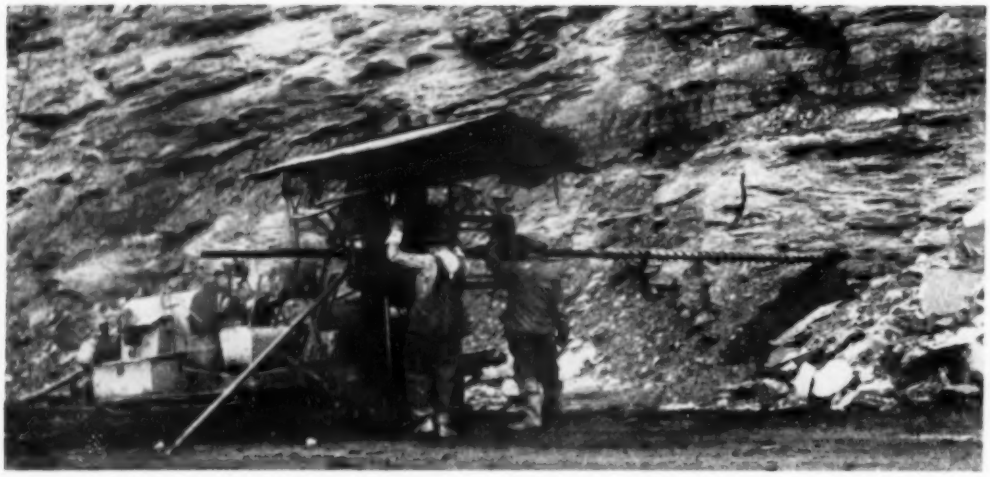
Operate Multi-Million Dollar Tipple

The aim of the haulage, as well as that of all the operations here described, is to keep a 250-ton capacity storage bin, which feeds the tipple, well supplied with raw coal. This is attained for the new multi-million dollar tipple, which was designed to process 500 tons an hour, turns out an average 3000 tons of prepared coal in a single-shift day.

From the storage bin the raw coal is carried by conveyor into the tipple after being crushed by a McNally Pittsburgh double roll crusher. In the tipple, the coal passes over classifying screen, is washed, dried, and conveyed to chutes where it is loaded into waiting hopper cars. Sludge from the tipple is pumped by a Morris sludge pump through 3600 feet of 6-in. cast iron pipe which drains into a 3-acre reservoir. Drying of the coal is handled by Baughman Verti-Vane Thermal Coal Dryers.

The Blackfoot Coal and Land Corp. has in recent months made permanent plant improvements which go a long way towards maintaining the company's policy of good housekeeping. Among these is a new brick smoke stack 165 feet high, 20 feet in diameter at the base and 10 feet in diameter at the top which has been erected

• A 21-yd. dipper of overburden is cast to the spoil bank in the larger of two pits being worked.



• Crawler - mounted drill puts horizontal holes into overburden. Sixteen to 18 holes are set off at a time.

• Clean-up on seam loaded by shovel is handled by International TD-14 crawler equipped with Bucyrus-Erie Bullgrader.

to get rid of exhaust gases, smoke, and very fine particles of coal from the dryer furnace and Baughman fine coal thermal dryer. This stack eliminates gases and smoke getting into the tipple building and gassing the men working there. It keeps fine coal settling on the flat roofs of the tipple and dryer. It also eliminates the corrosion and discoloration of the metal sides of the buildings.

The corporation recently installed a giant mix-master in the lake pump house to neutralize acid lake water, which has a PH value of 3.5. This machine mixes hydrated lime with water and then pumps it into the suction side of the lake pump. By using twenty 50-lb. bags of lime per 7¼-hour shift they can raise the PH of this water up to neutral. This machine should save thousands of dollars in pumps, pipe lines and tanks.

At present, the Blackfoot Coal and Land Corp. is installing a dust control system in its preparation plant to keep down the dust at crushers and vibrators. This system is manufactured by the Johnson-March Corp. of Philadelphia and consists of mixing a compound with water and then piping it to the dusty places in the tipple where it is sprayed on the coal in a fine mist. The compound breaks down the surface tension of the water and does a more effective job of knocking the dust out of the air.

Has Reforestation Program

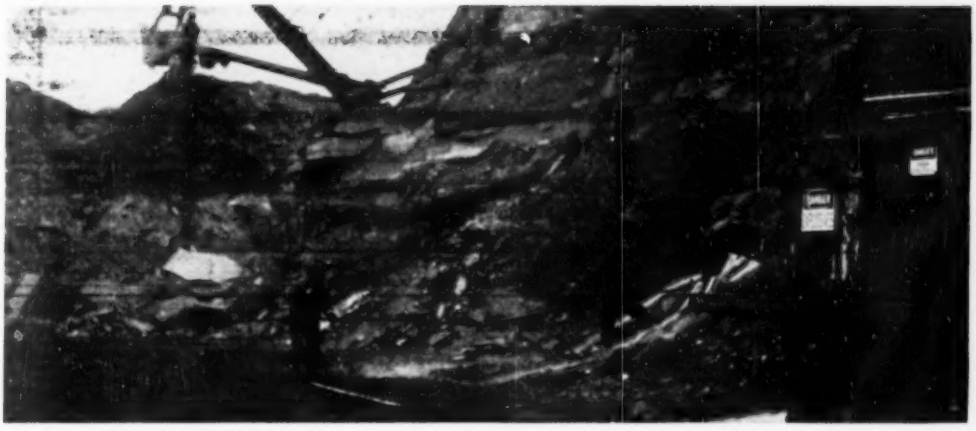
As the filled hopper cars leave the tipple for the siding, they pass over a 20-ft. weighing platform and are weighed by a Winslow car scale. The hopper cars are picked up each evening by the New York Central Railroad which ships cars to many large cities where coal sees use in the generation of steam for industries and utilities.

But coal stripping at Blackfoot doesn't end with the coal loaded on hopper cars. It involves, too, the reforestation of lands stripped of coal. Here, in the last five years, some 1700 acres of the approximate 2000 depleted have been planted with evergreens. An average 900 trees which are purchased from state nurseries are planted to the acre.

Building facilities in the property include a 32x30-ft. two-story, brick office building, a 64x24-ft. brick washhouse which also houses a laboratory, and a combination garage - supply - machine shop building which has 19,000 square feet of floor space.

The office building was completed in 1946 and accommodates the offices of the superintendent, engineer, timekeeper, and weightmaster. Eighty-seven lockers and eight tile showers are available for employees in the modern washhouse which was completed in May of last year. On one end of the washhouse, in an enclosed room, is the laboratory which is used to ascertain the moisture

• A fleet of International Diesel and gasoline tractors pulls trailers of coal from pits to tipple. Trailers are United Iron Works and Austin-Western.



• Here liquid-oxygen cartridges are loaded in holes. DuPont blasting caps and blasting machine fire the blast.

and ash content of coal. These tests provide a better control of coal processed in the tipple.

In addition to being able to shelter many small trucks, the heated garage can accommodate 10 huge tractor-semi-trailers. Adjacent to the garage is the storeroom which is stocked with at least 10,000 different items, being well equipped to handle any usual emergency which might arise. A variety of tools and machinery make the machine shop complete. Among them are: a No. 4 Cincinnati milling machine, 16-in. Carrol-Jamieson lathe, two spindle J. McCable lathes, 24-in. Gould & Eberhardt shaper, Oster pipe threading machine, Rodger hydraulic model D2 gear press, and Marvel No. 9 high speed saw. Also contained in the shop is a forge for maintaining and sharpening bucket teeth, drill bits, and augers.

Other equipment used in connection with the operation are two 8-ton and one 14-ton Ford dump trucks, which haul tipple refuse for road construction; two 1½-ton Ford platform trucks for hauling supplies, liquid-oxygen, etc.; one Ford pick-up used by the truck foreman and mechanics in connection with truck maintenance; an International pick-up which services the master mechanic.

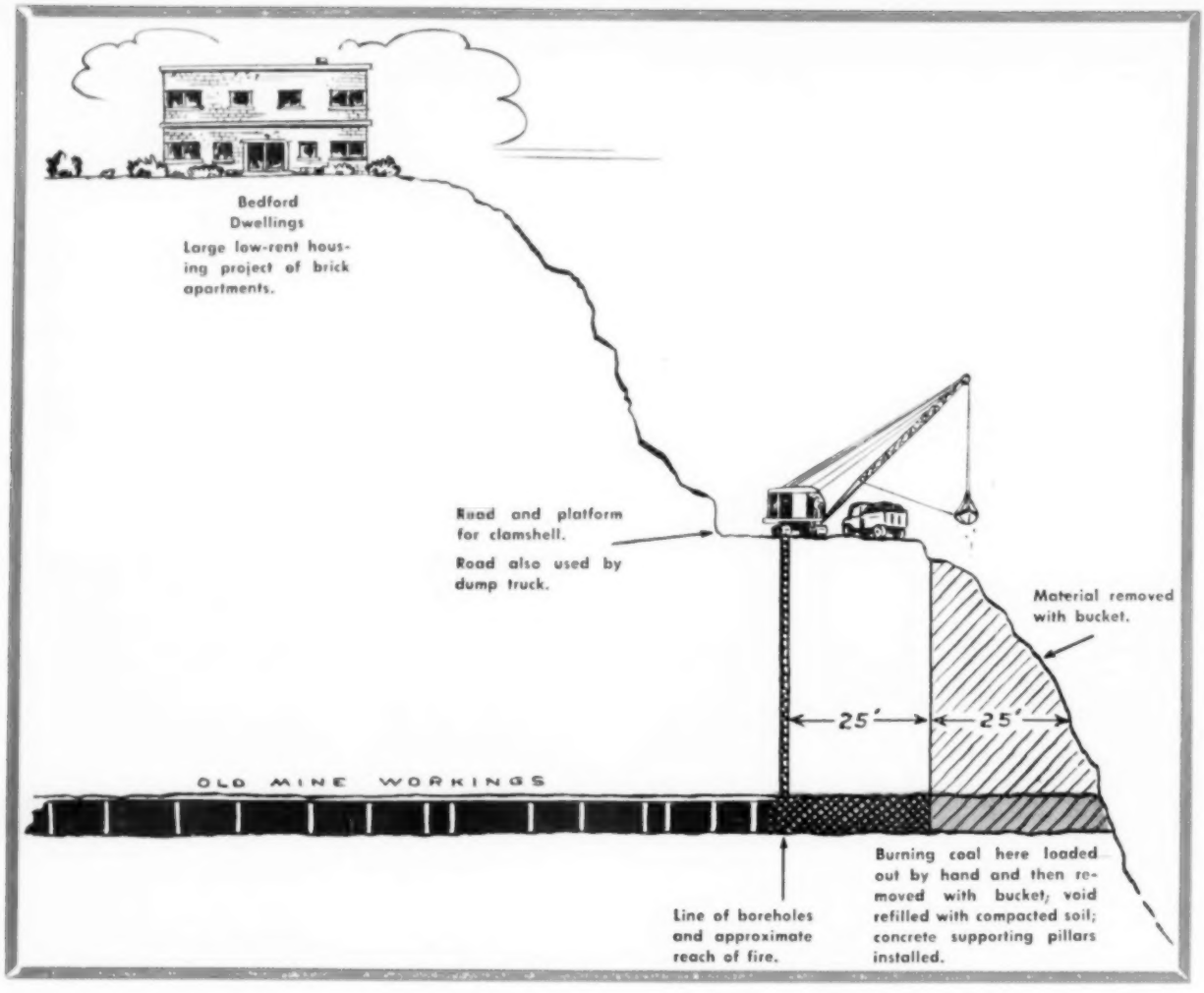
20 Million Tons to Go

With such facilities, as well as the many already mentioned, the Blackfoot mine is well equipped to tackle its future assignment which is the removal of an estimated 20 million tons of coal —18,333,000 tons of Indiana No. 5 and 1,667,000 tons of Indiana No. 4. To increase the volume of overburden stripping, the Blackfoot Coal & Land Corp. recently brought in a 12-yd. Bucyrus-Erie 500-W electric walking dragline. Loading out coal uncovered by the 500-W will be a new Bucyrus-Erie 54-B shovel with 4½-yd. coal dipper. It is expected that the 54-B will be working on the bed early in 1953. With the addition of the 12-yd. walking dragline, Blackfoot plans to increase the amount of overburden removed monthly from a 600,000-yd. total to 800,000 yards.

Personnel

A total of 125 men work the Blackfoot mine under the supervision of H. E. Fitch who has been with this company for 25 years. Chief engineer is Leland M. Morrison. Shovel and dragline pit foreman are Esley Sisson and Walter Schumacher, respectively; M. L. Winkler is master mechanic; August Doerner is shop foreman; T. S. Davis is supply room purchasing agent; Harvey C. Eakins is truck foreman; and Paul Eskew is weightmaster.

President of Blackfoot Coal and Land Corp. is Charles C. Kerwin; A. C. Aucona is vice president. V. C. Kibler is treasurer and John L. Barnett is controller.


Bedford
Dwellings
Large low-rent housing project of brick apartments.
Road and platform for clamshell.
Road also used by dump truck.
Material removed with bucket.
25'
25'
OLD MINE WORKINGS
Line of boreholes and approximate reach of fire.
Burning coal here loaded out by hand and then removed with bucket; void refilled with compacted soil; concrete supporting pillars installed.

Clamshell Wallops Coal Mine Fire

For months, abandoned coal mine fire beneath Pittsburgh, Pa., hill threatened multi-million dollar Bedford housing development. Bureau of Mines directed local contractor's successful battle against blaze.

A FIVE-MONTH struggle with a coal mine fire in Pittsburgh, Pa., ended early last December with a knock-out victory for the forces of men and machines.

For months the blazing underground coal seam endangered the multi-million dollar Bedford Dwellings Project, a low-rent housing project in the city. The brick apartment development, sheltering hundreds of families, sets atop a steep hill overlooking Bigelow Boulevard, one of the Steel City's busiest thoroughfares leading into the Golden Triangle.

The fire, it is believed, was started late in 1951—about a year before it was finally extinguished. Children playing on the hill may have unknowingly ignited remnants of the forgotten Pittsburgh coal bed. The fire was not discovered until it had eaten far into the bed underlying the area.

The swelling fire quickly followed workings of a mine abandoned 75 years ago. Settling of building foundations in the area was the prospect if the fire continued to eat away the coal bed. Masses of sandstone, lying immediately over the coal bed, were weakened and were in danger of tumbling into Bigelow Boulevard.

With hours at a premium, the City of Pittsburgh requested the Bureau of Mines to undertake the job of extinguishing the inferno. F. E. Griffith, Bureau mining engineer, got the job of directing the successful five-month campaign against the blaze.

The city agreed to pay $14,000, or the necessary one-third cost of fighting the fire. The Bureau provided the remaining two-thirds, or $28,000, and awarded a contract totaling $42,000 to Vipond & Vipond, Holidaysburg, Pa., contractors, upon approval of Regional

• Workers play stream on stubborn coal-seam fire in Pittsburgh, Pa. Some of cooled coals were removed by hand and hoisted to top of hill by clamshell. Temporary cribbing at left supports doubtful rock.

• Bucyrus-Erie 22-B clamshell hoists burning material and rock from exposed burning coal on hillside below. From here it was hauled to dump by Ford truck in foreground.

• F. E. Griffith, Bureau of Mines engineer (foreground), takes temperature reading in 40-ft. borehole sunk into Pittsburgh hillside to determine march of underground coal fire.

• Top left: McCarthy drill equipped with earth auger bores 8-in., 40-ft. hole at site of fire-control project.

Director H. P. Greenwald of Pittsburgh and Bureau Director J. J. Forbes of Washington, D. C. Work began in July.

Determining the limits of the fire was one of the first steps. A truck-mounted McCarthy drill equipped with earth auger worked six holes into the hillside immediately above the burning coal seam. Of 8-in. diameter, holes were sunk an average of 44 feet.

Hole Temp. 80°

One drill hole came within one foot of the extent of fire. Temperature in that hole was about 80° F. A foot away, where the fire burned, it was hot enough to melt rock.

Engineers found the fire had spread 150 feet along the hillside. It had already worked 50 feet into the hillside along the abandoned coal bed which originally had been about seven feet thick.

Earthmoving operations took shape when a Caterpillar D-7 dozer arrived to cut an access road into the hillside. Besides expediting movement of equipment, the road served as a platform for machinery engaged on the job.

Running parallel with Bigelow Boulevard, the road extended 1600 feet. The dozer cut the width to 40 feet.

The road-building job took only 10 days. A constant difficulty encountered in building the road was the danger of loosened material dropping into Bigelow Boulevard far below.

The fire-fighters fended off the danger by setting a plank fence on the hillside below the fire area to stop material and safeguard men. The fence paralleled the haul road for some distance, although not for the entire 1600-ft. length.

Even with the safety fence, the road builders had to keep on their toes. Skillful maneuvering and watchfulness became the order of the day for the dozer operator.

In order that the men might be able to get at the burning coal, a 25-ft. length of overburden had to be stripped. Some blasting was required to reduce overburden to sizes small enough for removal.

Halt Boulevard Traffic

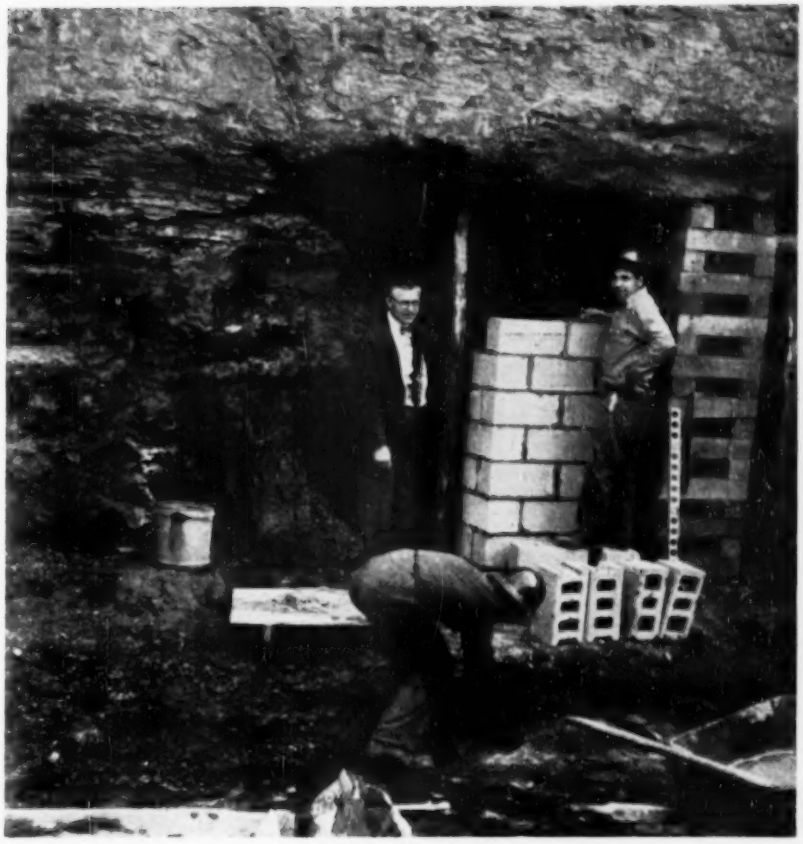
As a precautionary measure during blasting periods, traffic along Bigelow Boulevard was halted by order of Pittsburgh police. City Engineer John Stevenson kept police informed when traffic stoppages would be necessary.

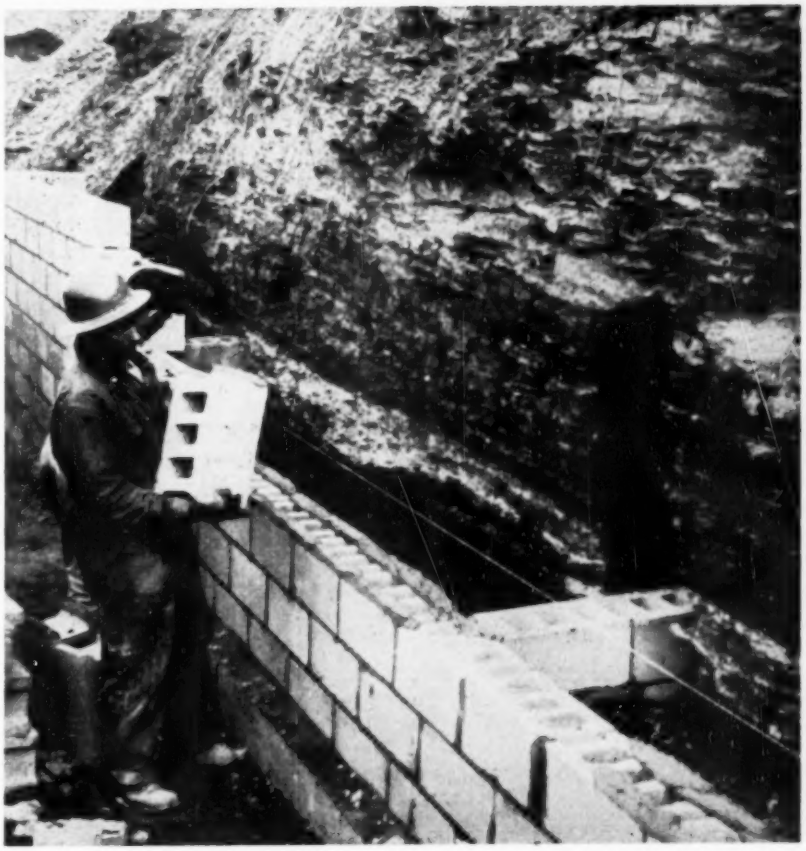
A Buda-powered Bucyrus-Erie 22-B crawler crane stationed on the haul road removed overburden with a ¾-yd. clamshell bucket.

After exposing the burning seam, workers played water on the white-hot coal to cool it. The 22-B lifted the chilled coal to a Ford truck equipped with a Thiele bed.

The truck then hauled the material 1200 feet away to a dump area at the end of the road. Here waste material and coal, some of which had remained quite hot, was sprayed with water and then covered with a blanket of earth to prevent re-ignition.

Vipond & Vipond did not remove





• Above: With one of Pittsburgh's busiest thoroughfares—Bigelow Boulevard—below them, workers shovel out coal and other material removed from burning coal seam. Timber wall prevented loose material from plunging into boulevard. Top right: Concrete block pillars were built to support rock above destroyed coal seam. Bottom right: Concrete wall built around exposed coal seam will prevent ignition in future.

the second 25-ft. section of overburden. Instead, men wearing gas masks to protect them from carbon monoxide and hydrogen fumes, followed the old mine workings into the hillside to remove burning coal by hand.

Pour Tons of Water

Day after day, workers poured tons of water into the mine opening to cool the burning coal. After sufficient chilling the men brought out the coal in wheelbarrows. The 22-B and Ford truck took over from there. Nearly 9000 tons of burning coal were removed.

With the void left by the removal of the coal, a cave-in was possible. The contractor installed wooden cribs and concrete pillars, and then filled the excavated area with compacted earth.

With the fire subdued, an exposed portion of the coal bed which had not yet ignited, was protected from future fires by a concrete wall.

They Circle Globe with Blue Circle Cement

by Edmund Updale

Britain's "Low-Output Blues" is no music for Blue Circle cement group. With a current 7-million-ton-per-year volume, operators keep alert for still better mechanization and higher production per man.

RECENTLY, the writer watched a workman slit open a bag of cement. The contents of that bag, on which was printed a prominent blue circle symbol, is now part of a runway to carry John Bull's new jet planes.

While the worker toiled in England, a native in West Africa slit open a bag of cement, bearing the same vivid symbol, to make a concrete foundation for his new home.

On the other side of the world, a trabajador in Mexico City, mixing concrete for Fifth-Avenue-style buildings, was using cement made locally at Tolteca or Mixcoac—works in which the Blue Circle group have a substantial interest.

The sun never sets on the blue circle—and there is never a moment when Blue Circle cement is not setting. The prosperous Associated Portland Cement Manufacturers, Ltd., and its associated companies, have indeed put a blue circle round the world.

The Blue Circle group, which not so long ago had upon it the specu'ative eyes of the big politician with a craze for state ownership, is a big organization. From its 26 factories in Britain alone, more than 7 million tons of cement were produced last year. Nearly a ton of material is handled every second, day and night, by excavators, scraper teams, dozers, trucks, rail systems, and an aggregate length of conveyors that would encircle Long Island.

The group has plant and machinery reserves of nearly $15 million to maintain its equipment. Money is not left idle, any more than the machinery, operating three-shift days from January to December, year after year.

Latest large investment of capital is showing results at the Shoreham works, in Sussex, England, a gull's screech from a popular South Coast holiday resort. Owners claim the plant to be the most modern of its kind in the world. Dust suppression is so effective that the main problem is to keep extraneous impurities out of the filtered air.

With the exception of coal and gypsum, raw materials for the big rotating kilns and grinding mills, which are passing through 400,000 tons of cement a year, come from an adjacent chalk pit, and from a clay pit 2½ miles away at Horton.

The factory is built mainly on the unyielding bed of a worked-out chalk pit, only the main stack of the kiln-house extending above the 180-ft. high face. The public highway is straddled by lofty conveyor gantries connecting the processing plant, with its wash-mills, kilns and crushers, to the packing and loading section.

Chalk Delivery Cheap

Delivery of chalk is an inexpensive operation, with the new pit being at a higher level than the stockpile, making gravity dumping possible. Average daily requirement of chalk at the present rate of Shoreham's production is 2300 tons.

Every ounce of this has been excavated by a Ruston-Bucyrus 120-B Ward Leonard control shovel, its 5-yd. dipper clearing a 25 to 40-ft. face round a 250° curve.

Above this, a new upper bench is being opened by a Ransomes and Rapier 414D with 3½-yd dipper. A third bench, below the present face, will soon bring the workable depth of chalk to approximately 100 feet. Below this is a chalk reserve calcu'ated at 20 million tons.

Overburden is negligible, and the chalk is solid right through to at least 250 feet below sea level, though this depth is not likely to be reached by open-pit methods.

The chalk is lightly flinty, and faulted by occasional clay streaks. Since clay is used in the manufacture of cement these faults are not of any great significance, though they cause "nuisance value" during excavation.

First cuts on the bench now being worked were easy, but with the removal of 400,000 tons to date the chalk is becoming formidable. As yet it has not been necessary to blast for the Ruston-Bucyrus shovel.

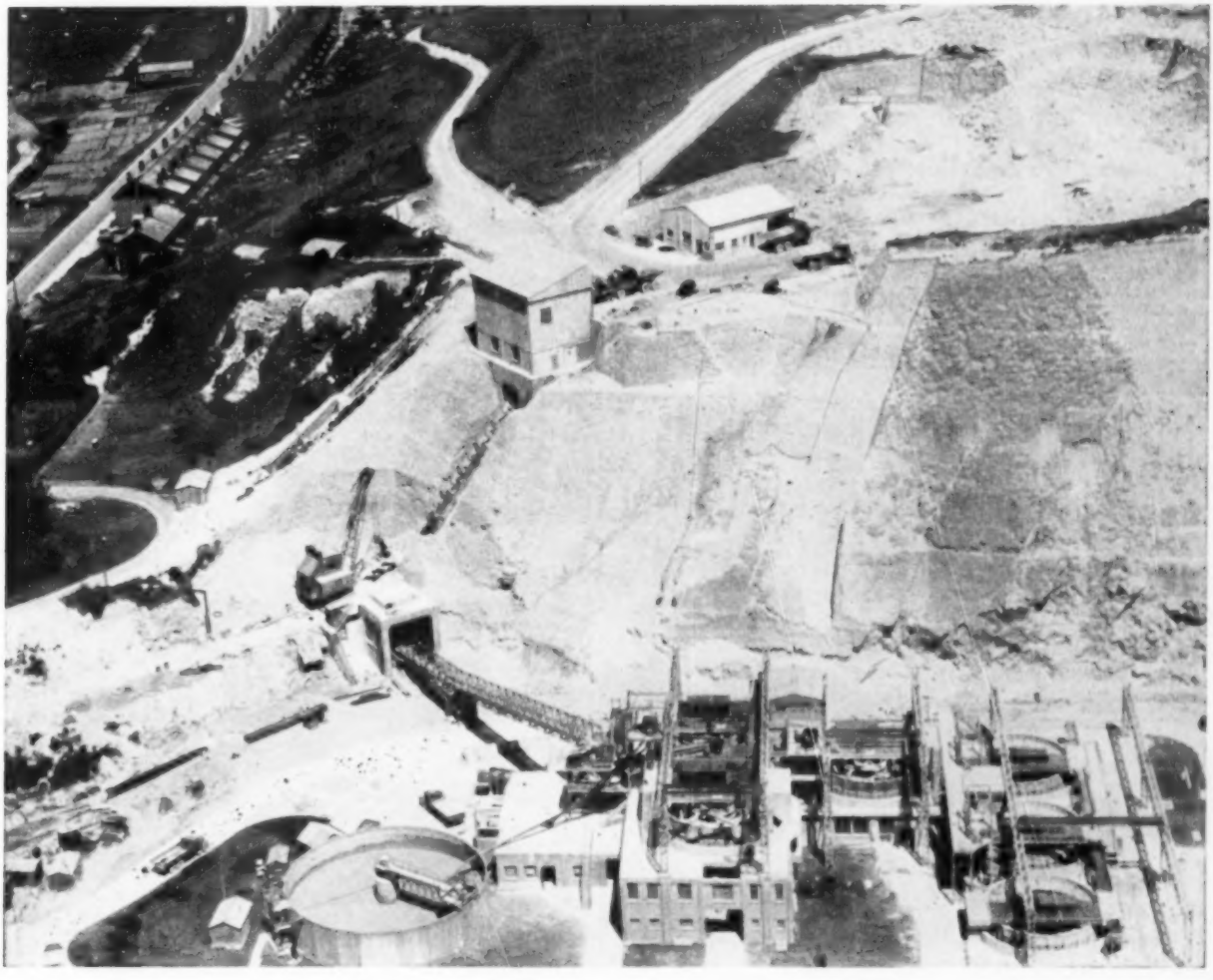
The 120-B fills a relay of four Aveling-Barford 9-yd. rear-dump trucks, which travel in a wide arc from the face to the tipping point, on the highwall of the old pit. Here the drivers swing their seats to the backing position, and run the trucks up to the chalk crusher house to empty their loads. The trucks then return to the face by the same route, with ample room for loaded and unloaded trucks to pass without delays.

Opposite the chalk crusher house is a repair shed and garage.

In the crusher house the chalk is reduced by 600-tph twin roller kibblers, supplied by Edgar Allen, Ltd. Introduced with an eye to the future, their capacity is well in excess of present needs.

Freshly-dug chalk is broken down

• Above: At the Shoreham works chalk pit, a Ruston-Bucyrus 120-B loads an Aveling-Barford rear-dump. The 5-yd. machine works against a 25 to 50-ft. face. Below: Here is an aerial view of Shoreham works of Associated Portland Cement Manufacturers, Ltd., makers of Blue Circle cement. Present chalk pit is at upper right.



• A well-guarded 30-in. conveyor moves chalk from stock pile across roadway to slurry washing plant at Shoreham.

to a maximum gauge of 10-in. cube, and it cascades from the crushers to the stockpile at the foot of a chute, where supplies for more than a day's top output of finished cement are constantly maintained.

Stockpile chalk is fed by crane-grab to a vibrating Sherwen feeder hopper made by Fraser and Chalmers, which evens out the load for tandem 30-in. Sutcliffe belt conveyors carrying the chalk to the washmills.

Works traffic has been given plenty of headroom under the conveyors.

• Aveling-Barford 9-yd. truck dumps load of chalk at Shoreham crusher house.

At the rough washmills the chalk meets the clay slurry, which has arrived by pipeline from the distant pit, at present supplying 500 to 600 tons a day.

The clay is dug from the 35-ft. deep face by a Stothert and Pitt multi-bucket excavator with a capacity of 70 tons an hour.

This excavator, mounted on 8-ft. 6-in. rail track, feeds through its integrated hopper onto three 24-in. conveyors. These extend in all 1200 feet to a 25-ft. diameter washmill, which is conveniently supplied with water from an adjacent lake. Water level is maintained by pipeline from the mains system at the works.

The clay slurry from the clay pit tank is discharged into another storage tank, 52 feet in diameter, and the constantly agitated slurry is then piped to the works through subterranean 8-in. line.

The pipeline is double, and the two are kept clean by alternating them between carrying water and slurry. Corrosion is fought by protective bitumen and asbestos sheathing.

Three Newell pumps dispatch the slurry to the factory at 300 lbs. psi. From the works storage tank where it is again constantly agitated by rotating girder to prevent settling, the slurry goes to rough washmills for the first mixing with the chalk from the stockpile.

Flints—a paying by-product—are removed in subsequent milling processes, and carried by conveyor to waiting rail cars or to a dump. The group is the biggest supplier of flints in the British Isles.

During the cement making process at Shoreham more than 2300 tons of coal and 500 tons of gypsum are handled every week. The finished product is bagged at the packing station in paper bags made by the group, which uses 34,000 tons of kraft paper a year for this purpose.

Movement of material is as efficient and simplified as the excavation of chalk, clay, and lime. This is the result of increasing mechanization, which started with the introduction of a Ruston-Proctor steam-powered excavator to load chalk into horse-drawn wagons on steel track.

Swanscombe Plant

The excavator was introduced years back at Swanscombe, site of another great cement works near the Thames estuary port of Gravesend, Kent. This factory uses clay dug by grabs from the marshes which are a feature of the flat land in the region.

Swanscombe and Shoreham together embody most of the excavating and handling methods adopted today at the group's workings throughout the British Isles.

Cliffe Marshes, source of Swanscombe's clay—and for the nearby Kent Works—are 12 miles from the factories. The marshes are yielding nearly 12,000 tons of clay a week. It is carried in two 1000-ton clay "tankers," fine-looking vessels which were laid down to the group's specifications. They ply up and down the Thames between marshes and works.

Named Claytransporter and Clay-

• On the center bench at Swanscombe chalk pit, a Ruston-Bucyrus 100-B shovel swings 3½-yd. dipper to fill train of eight 10-ton wagons.

carrier, the ships are equipped with centrifugal pumps to discharge their cargoes of slurry from the compartments to storage tanks at the factories. The slurry is then pumped to the washmills, for mixing with chalk.

Depth of excavating below the surface of the clay marshes is from 12 to 25 feet, and the clay is raised by two sturdy pontoon-mounted units. These units include the floating base, 3-ton Grafton cranes with grabs, a washmill and two 3-throw slurry pumps.

Clay is deposited by the grab into the washmill, from which it is pumped along 8-in. pipeline to a main pumping station on the marshes.

Both clay-digging units pump into 500-ton intermediate storage tanks at the central pumping station. From here the slurry is pumped 1400 yards across country to the main 2000-ton tanks at a jetty on the bank of the Thames.

Here the clay ships are loaded. A thousand tons of slurry is piped aboard in well under an hour; average time for loading the ships is 45 minutes.

The process is continuous, excava-

• Above: Two LeTourneau scrapers used on overburden frame picture of Swanscombe chalk pit. At far corner, top shovel removes overburden; center Ransomes and Rapier shovel casts chalk to Ruston-Bucyrus shovel for load-out at lower level. Below: Pontoon-mounted ¾-yd. clams dig clay from Cliffe Marshes.

tion of clay going on all day, through the night, seven days a week. A gross area of 16 acres of marshland is worked over in a year. There are still more than 1500 acres of marsh in the group's Thames-side territory, enough for at least 90 years' continuous operation at present requirements.

Long before this vast expanse is exhausted, a wide tract of lakes, about 400 yards square and broken up by breakwaters, will cover the area. The breakwaters, 50 feet wide between lakes, eliminate danger from rough water during gales. They also provide a firm surface for pipelines, pumping stations, and field transport. They reduce the clay-yielding area to 13.7 out of the 16 acres a year, but on the credit side they make first-class grazing land, which is rented to farmers.

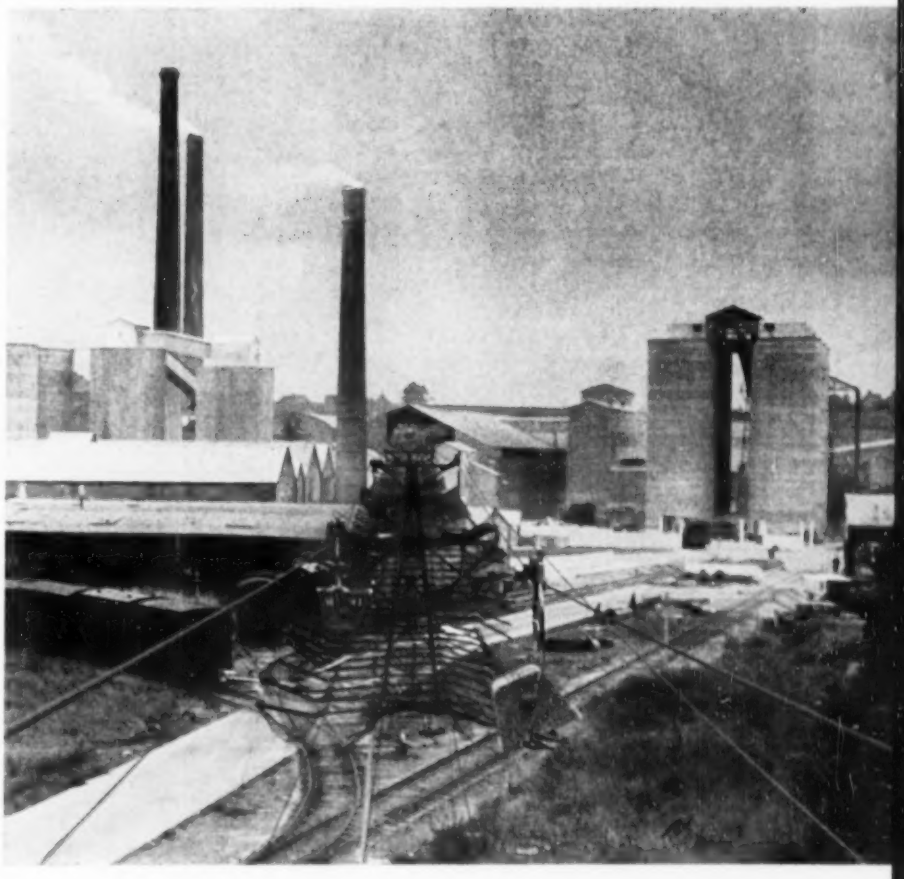
Sharply contrasting with the 12 miles between marshes and factories is the bare ¾-mile distance between Swanscombe's chalk pit and the works.

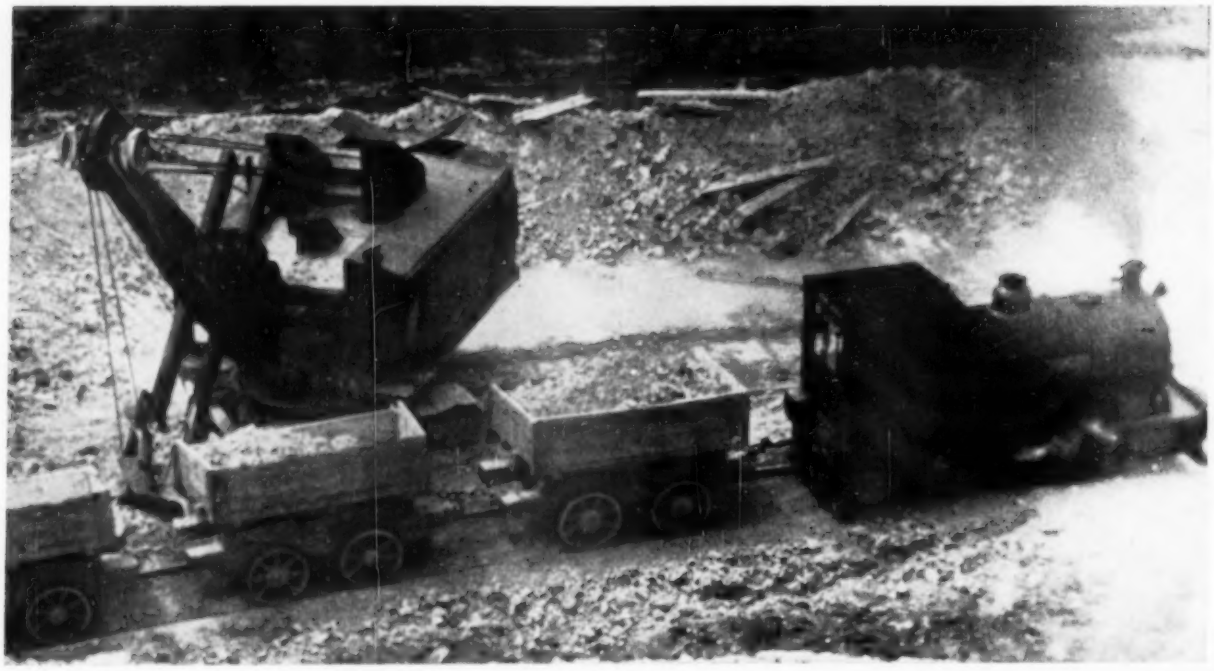
1.1 Million Ton Yield

Chalk is obtained from the Western Cross quarry, which is yielding 1.1 million tons a year from its maximum depth of 220 feet, which includes overburden up to 125 feet deep.

Two LeTourneau B33 Tournapulls haul E35 scrapers to clear the sand overburden, leaving a remaining depth of 30-35 feet to a Ruston-Bucyrus ENC 20 shovel. The 3½-yd. Ruston-Bucyrus stands on the chalk bed of

• Below: Here is a shot of the Swanscombe cement works of the Blue Circle group. The herring-bone effect in the foreground is made by the safety net beneath the overhead ropeway which delivers coal from the company's bunkers. The plant has its own pier on the Thames.





• Above: A Ruston-Bucyrus 55-B loads 4-yd. wagons in Brooks chalk pit for delivery to Wouldham works.

the upper of three benches, and loads through a hopper to a 30-in. belt conveyor.

The LeTourneau scraper units carry 35-ton heaped loads. Allis-Chalmers HD-14 crawlers help push when conditions of work demand their aid.

The overburden haul extends for more than half a mile round part of the pit, to a dumping point in the worked out section, almost opposite the working face. The round trip by the LeTourneaus, including filling time, is covered at the rate of five to six journeys an hour, according to conditions underwheel.

The Ruston-Bucyrus on the remaining slice of overburden is track-mounted and fully mobile under its own power. The conveyor it feeds—Maver and Coulson—has nine bands in series totalling 1850 yards in length, to the tip.

Here, levelling is done by D8 dozers.

Overburden Enters Tunnel

The overburden conveyor enters a tunnel under the public highway on the way to the tip, which is an old working now being filled in for rehabilitation as agricultural land.

Digging the chalk at Western Cross quarry is the job of three shovels, well supplied with auxiliary equipment and a standard gauge 4-ft. 8½-in. railway from pit to works.

Maximum combined height of the chalk faces is 120 feet, and the shovels travel along the bench roads, down gradient and back.

The surface bench, easy digging on a face about 25 feet deep, is cleared by a Ransomes and Rapier 490, its 2½-yd. bucket casting below for the shovel on the next, and main face, to rehandle.

The shovel selected for this second face is a Ruston-Bucyrus 100-B, with 3½-yd. dipper. It clears its own 35-ft. face and picks the chalk cast down by the Rapier.

The chalk at these two levels, used for the manufacture of Portland Cement, is loaded by the RB into 10-ton wagons. It is a standing order, as a safety precaution, that drivers must uncouple the locomotives and take them forward a few yards while the first wagon is being filled.

Hawthorne and Leslie steam locomotives draw trains of eight wagons to factory washmills, about 1200 yards away. The track passes through four tunnels in this comparatively short distance, one of them cut under the main British Railways' line. Another goes under the main highway.

The lower chalk bench at Western Cross provides material of a superfine white quality for making Snowcrete white cement, whiting and other special products for which it is ideal.

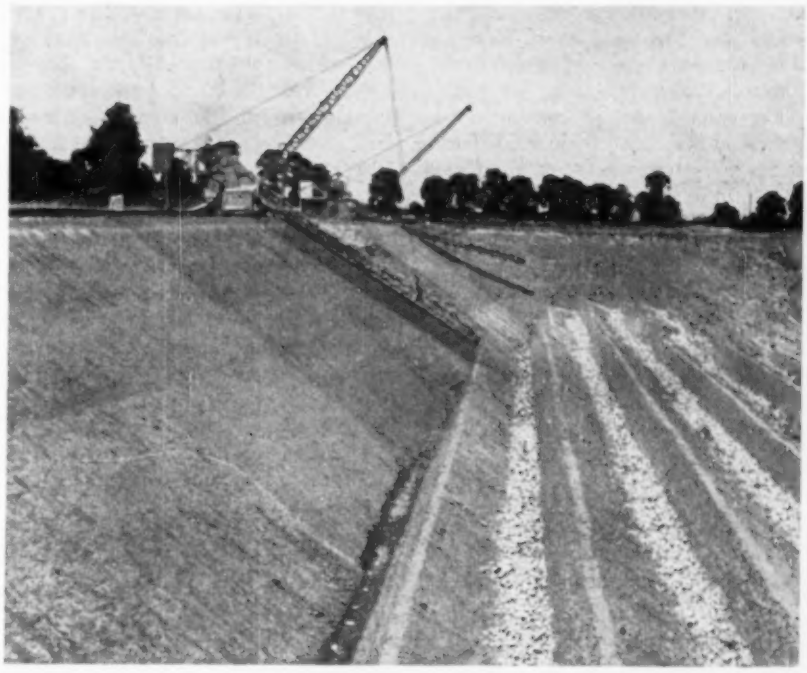
On this face a Ransomes and Rapier

shovel identical to the machine on the casting bench loads 10-ton wagons. The trains are taken by locomotive along the pitbed to a junction and tunnel on the rim of the quarry, where the tracks converge.

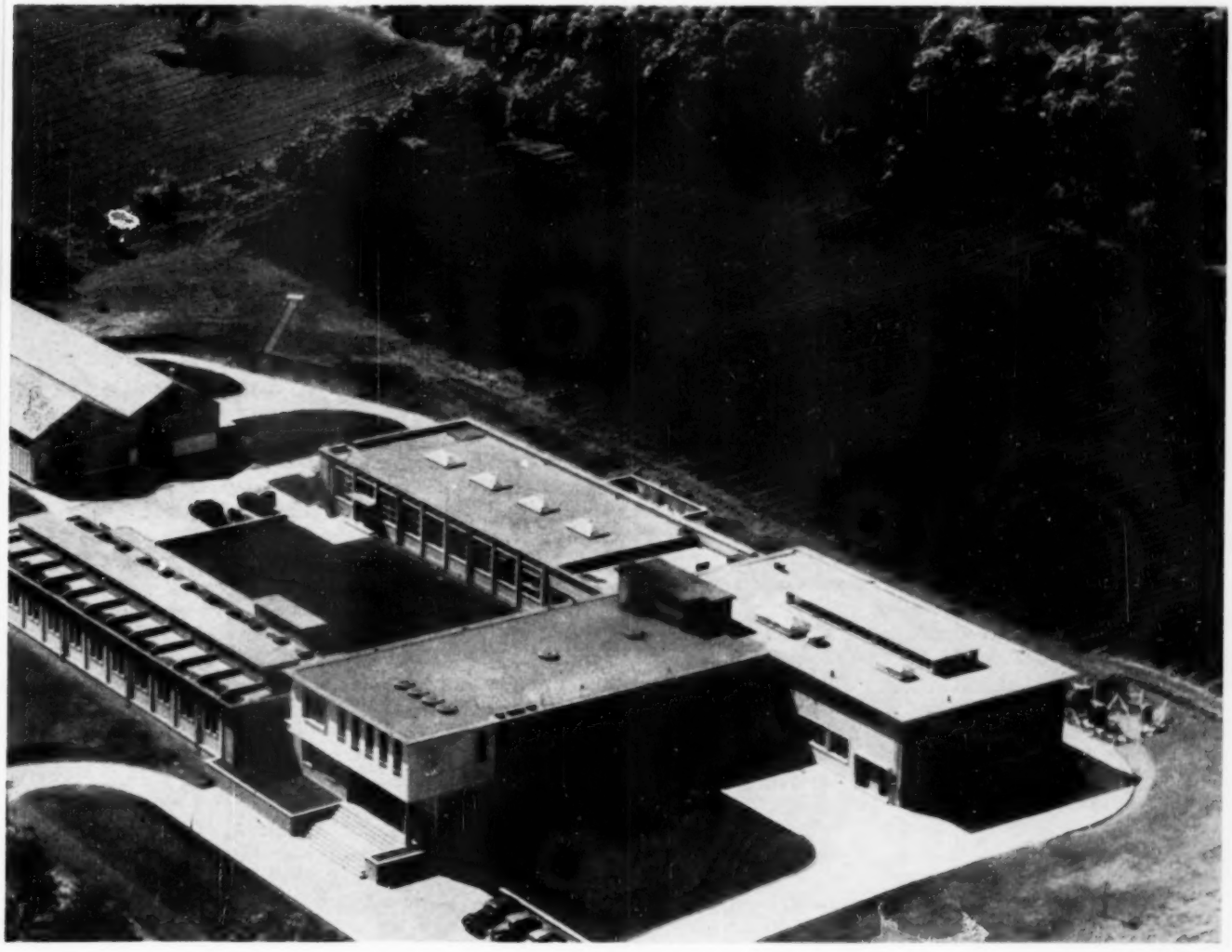
Pit water, of which there is plenty, is pumped to the works at the rate of half a million gallons a day for use in the washmills and other processes.

Swanscombe's chalk pit is archeologically famous. A prehistorian found two bones of a human skull in the upper middle gravel—the undamaged left parietal and occipital bones of a girl, perhaps 300,000 years dead.

The girl has now become the "Swanscombe Man," an important



• Right: Two multi-bucket excavators take clay from the Wouldham pit. The nearer one is a Stothert and Pitt while the other is a Belgian Steenbrugge. Machines feed conveyor belt. Below: Blue Circle's central research laboratories at Greenhithe reflect organization's belief that research, more than ever before, cuts costs and increases profits.



link in everybody's descent. Text books say the maiden—if such she was—probably died in the Mindel-Reiss Interglacial Period.

Economical use of manpower, as well as of machines, being a key factor of the price formula—costs are always rising, and most of the group's employees received two pay rises last year—working methods are permanently under review to chip the next tenth of a penny off the price per ton.

Efficiency at Swanscombe quarry, with its huge output of chalk, can be judged from the payroll. There are only 40 names on it. The clay marshes down the Thames employ only 20 men.

Wouldham Works

Efficiency literally hits the visitor in the eye at another great factory operated by the group—Wouldham works, near Grays, Essex.

There are two pits, about three-fourths of a mile from the works. They supply 15,000 tons of chalk a week, the excavators varying output according to demand, and working as a rule round the usual three-shift day.

Chief source of chalk is Brooks Pit where it is dug by a Ruston-Bucyrus 55B with 2½-yd. dipper. The overburden, about 30 feet deep, is stripped by a Ruston-Hornsby H20 Diesel shovel with 1-yd. dipper, helped by a Smith ¾-yd. dragline.

The Smith loads the top 10 feet of overburden—ballast and sand—into ordinary commercial rear-dump trucks which spill into a worked-out part of the pit. The Ruston heaps Muir-Hill, Chaseside and Aveling-Barford dumpers of 2 and 2½-yd. capacity. They dump into the same worked-out section.

At the chalk face the Ruston-Bucyrus shovel loads 4-yd. side-tip wagons for railing to the factory. The shovel is fed from above by a Ruston-Bucyrus 37B, its 1¼-yd. bucket casting down the top 25 feet of chalk. In addition, the 55B is robbing the face of standing chalk, the digger's total daily handling being 2500 tons.

All of this is carried off across the pit by a relay service of two trains of ten to twelve 4-yd. wagons, hauled by Barklay steam locomotives. A third locomotive takes over the wagons at the works.

A general purpose Allis-Chalmers HD-14 tractor with scraper attachment helps in the handling of overburden and levels off at the tip. When required, it shoves the spoil left at the side of the shovel into the working face corner for loading by the shovel. This tractor is also used for removing the many tough tree stumps and massive hunks of brickwork, some of it from the ruins of an old castle, around the pit.

Has 12-ft. Overburden

The second and smaller pit at Wouldham works has 12 feet of overburden and a 40-ft chalk face. A Smith dragline of the same type as that in Brooks Pit does the double job of stripping topsoil and casting down the upper 15 feet of chalk for the loader, a Ruston-Bucyrus 55B.

When production requirements call for assistance there is a useful standby at hand—an old but still vigorous Ruston 20 steam shovel. She was sent to work recently, and paid her way handsomely.

On the far side of the quarry are four tunnels, one above the other. They show past and present methods of excavating chalk and overburden from the pit and its removal.

The upper tunnel was at pitbed level in the old days of hand digging, and through it passed overburden which was trammed out of the way.

The other tunnels were for the passage of chalk to the works, and the lower one is now used for this purpose, taking the rail track.

Relics of the hand-working days include a group of tough concrete catchments, which supplied water to the original works by gravity flow. The remnants of these tanks stand in an area being cleared of chalk. All but one of them will soon be broken up.

Converted Into Dry Shed

The survivor has been converted into a fine, dry shed with plenty of room inside for field equipment and repair work. One end was knocked away, and a roof thrown over the rest, to make this garage.

Water from these two chalk pits is pumped into the works by a 6-in. 4-stage plurovane pump for use in the washmills and for general purposes other than drinking. There is plenty available, as there is in the works' clay pit.

This clay pit is in the Ockenden marshes, 2½ miles away, where two multi-bucket excavators share the task of supplying 3000 tons of clay a week from a face 35 feet in vertical height and 300 yards long.

The excavators are a Belgian Steenbrugge and a Stothert and Pitt. As a rule, only one machine operates at a time.

Solidly mounted on wide gauge track and counterweighted, their 50-60 tons are quite safe on the steep highwall, where a machine of twice the capacity might be in danger from movement of the tricky clay, which tends to run about in prolonged wet weather.

Multi-bucket diggers feed the clay into their own hoppers, which spill into a surface-mounted Maver and Coulson conveyor about 1000 yards long, running in 12-ft. lengths along the highwall and turning there at right-angles, to begin a gently sloping downhill carry to the clay pit washmill.

The gravity-assisted run of the conveyor to the clay pit washmill passes under a road near the end of its journey, adding yet another tunnel to the considerable number driven to overcome natural obstacles.

From the washmill the slurry is pumped into the works in the same manner as at Shoreham and Swanscombe. Almost every digger is electric. Power is obtained from the National Grid at 33KV. This is stepped down at local transformer stations operated by the various works, to 3KV, 500V, and to 110V for lighting and small auxiliary equipment in the field.

Some Limestone Pits

Excavating Engineer's visits were to chalk and clay pits. Some of the group's works are in limestone districts, and the same high degree of mechanization is employed there in quarrying, transporting, and crushing the limestone before it is fed, with clay slurry, into ballmills.

Thus, by mechanization and efficiency, the price of English cement is held down, and production per man-week within the Blue Circle is at present 34% higher than in 1933. Nearly two million dollars were dispensed in the latest financial year in profit-sharing, pension provisions, and cash benefits to employees. The group has proved that incentives lead to a strong desire to stay on the job.

Every works has its own laboratory, in addition to the group's big Central Research Center. Samples of raw materials are taken many times during each working day to maintain the highest standard. Finished products are tested at the grinding mills every hour for setting time and soundness.

DIGGING — Contractor Del Balso of Bronx, N.Y., keeps his Model HM profitably busy. Here it's lowering grade for a new pavement . . . easily cutting the many tree roots encountered.

LOADING — Model HM doing a fast loading job on a dirt pile for Davis Construction Corp., Long Island. Fast reverse speeds and power boosted steering give this "PAYLOADER" high production on loading work.

BACKFILLING—A very popular "PAYLOADER" use is trench work — loading excess dirt and backfilling the trench. Tires do not injure pavements and the bucket can backfill over the top of sheeting or other obstructions.

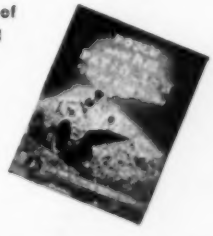
SPREADING — On the Penn-Lincoln Parkway near Pittsburgh, Frank Mashuda's Model HM spreads shoulder material while concrete pouring goes on beside it. Good tire flotation and maneuverability is an important HM asset here.

MASTER OF MANY JOBS

Big 4 wheel drive "PAYLOADER" tractor-shovels are capable *and* versatile — able to do *many* jobs and drive quickly from one job to another at speeds of 17 m.p.h. Big tires, plus 4-wheel-drive, gives them catlike traction and flotation to surmount poor ground conditions. Power boosted rear wheel steer makes them maneuverable and easy to handle . . . 4 gear ratios in each direction provide the right speeds to fit each task.

The powerful 1½ cu. yd. "PAYLOADER" is the flagship of the "PAYLOADER" fleet, which includes 7 sizes down to 12 cu. ft. bucket capacity. Also a choice of 4 wheel drive, rear wheel drive and front wheel drive to best fit your needs. Your Hough Distributor, one of 200 in the U.S. and Canada, is ready to serve you *right* — with extensive application experience and complete parts and service facilities. The Frank G. Hough Co., 708 Sunnyside Ave., Libertyville, Ill.

WRITE for full information on any of the "PAYLOADER" models: Four Wheel Drive HM — 1½ yd. and HR — 1 yd.; Rear Wheel Drive Models HY — 1¼ yd., HF — ¾ yd., HE — ½ yd.; Front wheel drive Models HAH — 15 cu. ft., HA — 12 cu. ft.



SAY "HUFF"

PAYLOADER®

THE FRANK G. HOUGH CO. SINCE 1920

REMAKING A RIVER BED. The channel of the Arkansas River is being realigned by this fleet of International crawlers owned by the C. W. Kelley Transport Company, Inc., and Rush Construction Company, shown cutting new channel through section of island.

Speeds up Sleepy River

RIVER CROSSING. International crawlers reach islands to start re-channeling work by building earth ramps across the river. They worked in sand and water throughout the summer with no downtime.

CHANGING THE CHANNEL. Operator Kie Bayless says: "These TD-14As have more 'soup' than any other tractor their size. They just plain move more dirt."

International crawlers speed up flow of Arkansas River as safeguard for Kansas wheat belt

Flow of the long and lazy Arkansas River is being speeded up one-third along a 30-mile stretch in Reno County as a flood prevention measure aimed at safeguarding the rich wheat belt in this Kansas County.

When the river rises just six feet, and it does periodically, it spills all over the wheat fields and causes extensive damage.

But county officials feel they have a solution. This year they launched the first portion of a proposed three-year plan involving some $50,000 expenditure each year for elimination of bad turns and islands in the river channel. This improvement will increase the flow of the river from 4.06 feet per second to 5.41 feet per second or more and it is felt this faster flow will be sufficient to keep the river in its channel.

Dirt moving for the first-year phase of the improvement is being handled by Rush Construction Company and C. W. Kelley Transport Company, Inc., with rugged red International TD-18A and TD-14A crawlers.

H. M. Dunsworth, job foreman, reports:

"We lug these TD-18As and TD-14As down all the time. They not only have the power and maneuverability to do a bang-up dirt moving job, but that high-speed reverse sure makes us money on this river job as lots of the dozing calls for long pushes. These Internationals, and some have been used for years, have worked over two months here under miserable conditions with absolutely no downtime."

Ask your International Industrial Distributor for details on the whole International line of money-making crawlers. Ask him, too, about his fast, ready service and speedy parts delivery. Get all the answers . . . you'll want International "Power that Pays" from now on!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

INTERNATIONAL HARVESTER

INTERNATIONAL

POWER THAT PAYS

• Construction men call this "the execution chamber," as they well might with many high tension lines close by. Cranes on this Los Angeles pipeline job are protected by a new device.

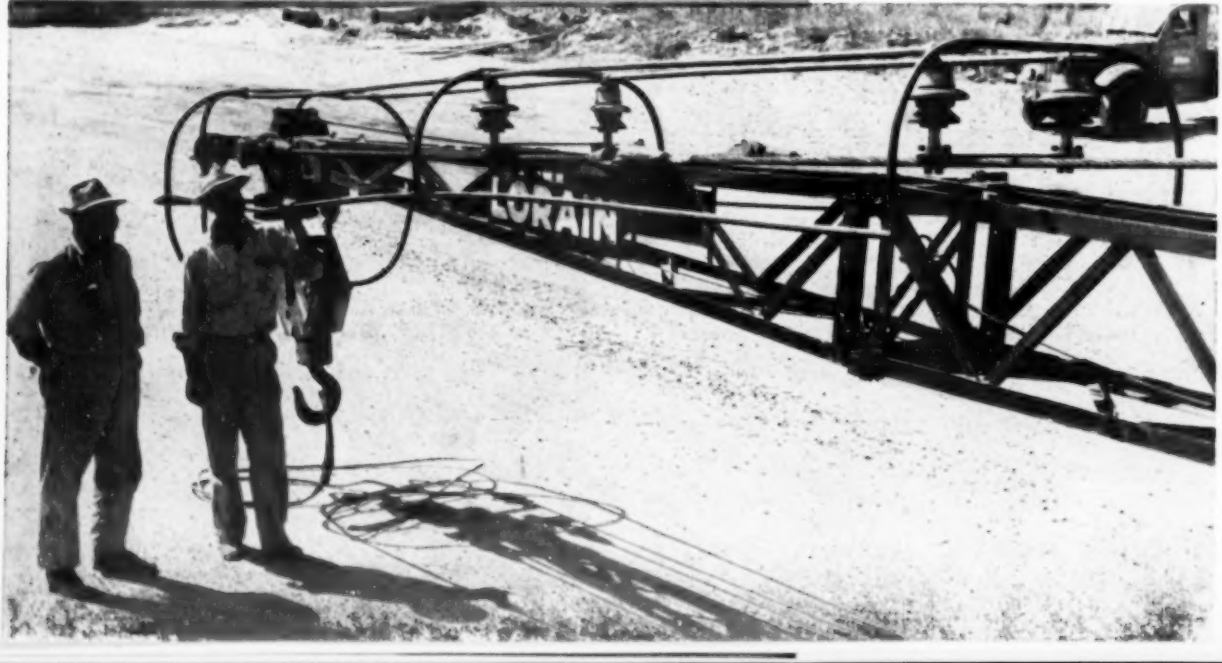
Tame California Electrocution Chamber

by Robert J. Green

• Crane Operator E. Powless of the Tulare, Calif., pipe yard stands with Plant Superintendent Gordon Zane inspecting protective boom device. Zane built first model when he was master mechanic at Tulare yard.

ON Eagle Rock Boulevard in Los Angeles, where high voltage transmission lines are so thick the site is called "the electrocution chamber" by construction men, United Concrete Pipe Corp. of Baldwin Park is placing 5½ miles of concrete pipe for a water-supply aqueduct. It was impossible, until a few months ago, to build that line. No sane safety engineer in the state of California would permit it.

To build that line, it was necessary



to dig a deep ditch in sopping wet ground, to stick crane booms up through veritable nests of dangerous power lines, and to handle 22-ton pipe sections. The site is covered by two 440-volt streetcar lines, a 1,400-volt power line, and 11,000-volt crossings. Under even a usual condition: a broken sling, a soft spot under a crane track, one moment of inattention on the part of a crane operator, and the ditch would light up like a Christmas tree, killing everyone in the bottom.

Despite this terrible hazard, UCP's men are going about their work confident and unafraid. For United Concrete Pipe Corporation's cranes are electrocution proof, thanks to Safety Director A. J. Thomas and Plant Superintendent Gordon Zane. They have ended one of the worst construction hazards of all time by inventing, patenting and putting into production a light, fool-proof dielectric boom guard which makes it impossible for an operator to swing a crane boom into a high-tension line with fatal results. The device will protect the machine from voltages as high as 50,000.

Thomas is one of the pioneer safety engineers in the nation. For the past two decades, he has been vitally concerned because accidental electrocutions in the construction business were killing more people than all the electric chairs in the nation's prisons. United Concrete Pipe Corp. is both a manufacturing and contracting organization, and particularly in its contracting division the company was having its share of these terrible accidents.

So great has the danger become that the State of California made it unlawful to swing a boom closer than six feet to a power line. Even so, with warning signs in the cabs and several violators in jail, the killing continued. In California alone, 52 were electrocuted in 1951. And that does not count those who escaped with hands and feet burned for life.

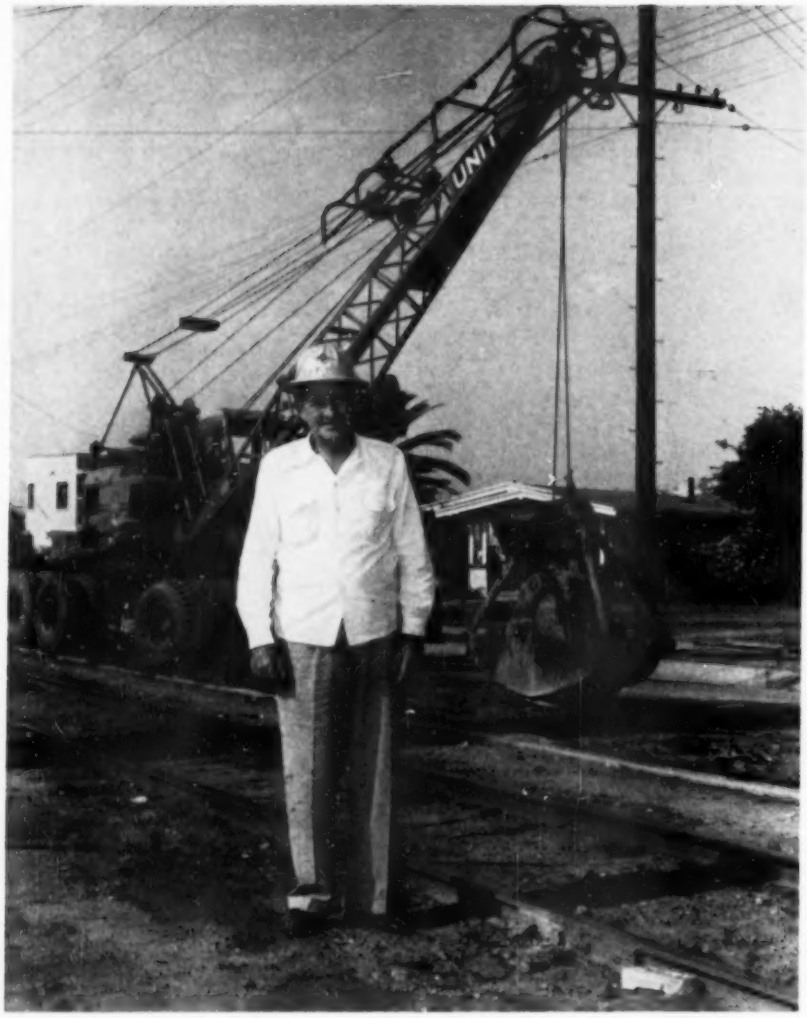
Two-Part Problem

Many people in high places had come to believe the problem was impossible to solve. Thomas thought differently. To him, the thing resolved itself into two problems. (1) the boom had to be protected and (2) some protective device had to be developed to prevent danger if the load line accidentally touched a high-tension wire.

Working with Gordon Zane, who at the time was Master Mechanic of

United Concrete Pipe Corp. slims chances of electrocution with new dielectric boom guard which prevents boom and power line contact.

• Protected by insulating device, crane operators and workmen can work with less tension in places where high tension electrical wires run. Crane unloads pipe at Tulare.



• He got initial idea. A. J. Thomas, United Concrete Pipe Corporation's safety engineer and veteran construction man, spent time and patience solving electrocution-danger problem.

the company's Tulare pipe manufacturing plant, a heavy framework was built and covered with rubber hose. The first experimental unit was mounted with a solid weld to the boom point sheave. It was too heavy. Especially with a low boom, it interfered with the operation of the machine. Operators took a dim view of the new device, and when they had a chance, they took it off.

Tough Cage

The final design of the boom protective device took about five months to work out, so that operators would accept it enthusiastically. It now consists of a light but very strong framework of ⅝-in. electric conduit, covered with a 3-ply coating of sprayed rubber. Ordinarily the framework protects the upper 20 feet of the boom, but the final design permits additional sections to be installed if desired to give the boom complete protection. A shovel-nose guard has been installed on the final models to catch and shove aside any high tension wire which the device might bump into. Although the insulating cage is only 22 inches wide, it is exceptionally strong, and can stand up under considerable strain. For example, if the boom is lowered flat on an ordinary motor crane and the swing brake released, a man can revolve the machine on its turntable by pulling on the insulating cage.

The insulating cage is fastened at three points—unless additional lengths are required — with General Electric 50,000-volt insulators interposed between the tubular frame and the boom. One set of fasteners is attached to a welded plate at the boom point, and two other sets are tied to the boom cable. The device can be installed or removed simply by unfastening a few bolts. The device interferes in no way with the crane operation, the service of the boom point sheave and bushings, or replacements at that point. It is sturdy and long-lived; as a matter of fact, the insulators have stood up under drop tests of 5,000 pounds.

Thomas and Zane have patented the device and have decided to make it available to the contracting and crane field generally by authorizing its manufacture commercially. El Monte Insulation & Repair Shop, of 2417 Seaman Ave., El Monte, Calif. has now brought out the first commercial models of the device. Griffith Co., of Los Angeles, had the honor of being the first commercial customer.

Load Line Problem Not Easy

How to insulate the load line against accidental high tension touching has been as difficult a problem to solve as the boom guard, but the solution now is about ready for the field. Fiber insulating bushings and disks were found which would stand the crane's designed loads at the load drum and the hook. These protective devices, installed particularly at the load line hook and the boom point sheave, will prevent the accidental transfer of electricity to men on the ground in case the load line accidentally touches a power line.

With this device and the boom guard in place, accidental electrocutions are expected to end.

It is still a violation of State and Company law for an operator to boom over within six feet of a power line, and under no circumstances are operators encouraged to be careless or violate the law simply because their machines are protected with the new device. It can be said, however, that the boom protector has been thoroughly tested both by the laboratory and by the field, and that at least on two occasions it has been instrumental in saving lives. The UCP pipeline job, one of the toughest tests the device could be put to, is going ahead rapidly and safely.

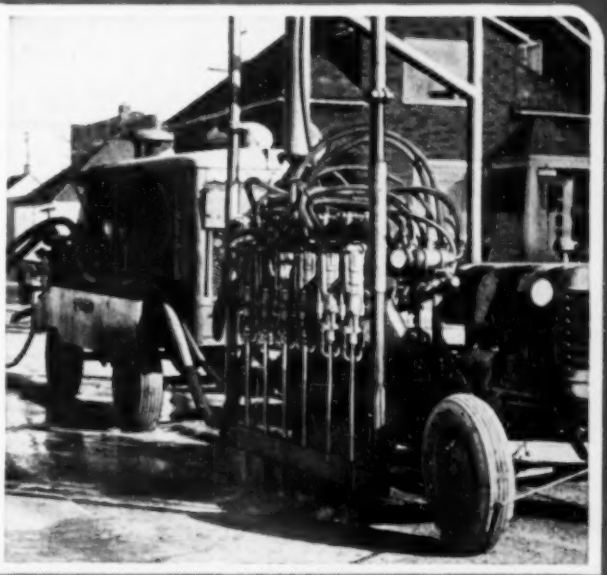
Thomas and Zane have now received recognition for their achievement by the National Safety Council, and it is believed that the step they have made toward construction safety may soon be made mandatory by agencies contracting work in areas where such electrical danger exists.

GM DIESEL
CASE HISTORY No. 5211-4

USER: R.L. Coolsaet Construction Co., Dearborn, Mich.

INSTALLATION: GM Diesel-powered Ingersoll-Rand 600 cfm rotary compressor replacing a 500 cfm compressor, supplies air to a tractor-mounted multiple drill—six drills 12" apart.

PERFORMANCE: Previous Diesel compressor supplied 75 lbs. of air to each drill and took time to build up pressure after each move. GM-powered compressor supplies steady 95 lbs., starts drills immediately and saves 20% in fuel costs. Unit drills 600 lineal ft. per day.



NEW GM DIESEL-POWERED RIG CUTS PAVEMENT-BREAKING TIME IN HALF

R. L. Coolsaet figures his pavement-breaking time is cut right in half with this rig when compared to the old way with one man on each drill. Now he drills six holes at once—gets twelve holes drilled in six feet and moves up for the next series, all in three minutes, and one operator handles the job.

This is another good example of how General Motors Diesel-powered equipment gets work done faster and reduces costs at the same time. Two-cycle operation delivers a smoother, steadier flow of power—gives instant response to overcome sudden load changes. Simple design makes it easier to maintain—lower-cost parts make it cheaper to maintain. Add it up and you'll see why GM Diesels give you power at the lowest cost per horsepower hour—for any job.

DETROIT DIESEL ENGINE DIVISION
GENERAL MOTORS · DETROIT 28, MICHIGAN
SINGLE ENGINES . . . 16 to 275 H.P. MULTIPLE UNITS . . . Up to 840 H.P.

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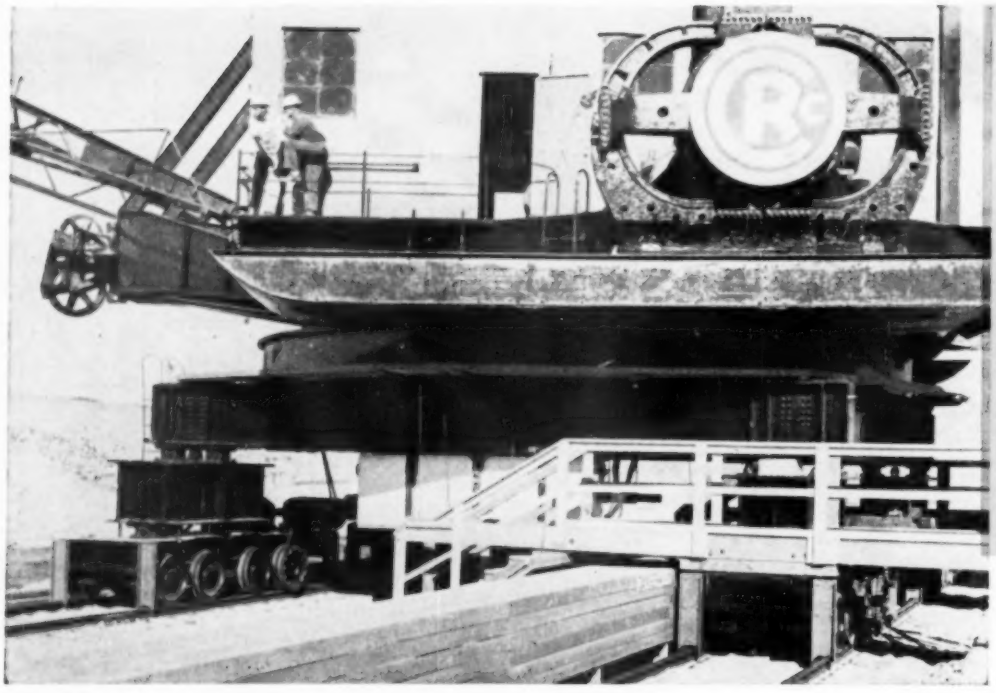
Write for booklet "A 50,000,000 Horsepower Insurance Policy" that tells you why.



• View shows new track mounting of Bucyrus-Erie 450-W walker which now travels on rails, mounted on eight four-wheel trucks. Sixteen of the 32 wheels are chain-driven from electric motors.

Walker on Rails Pours Chief Joseph Dam Concrete

by W. J. Granberg

Contractor mounts walking dragline on rails to handle long-term concrete pour on Washington's Chief Joseph Dam. Machine will place intake structure concrete.

THE largest piece of equipment on the Chief Joseph dam project on the Columbia river in north eastern Washington is the Bucyrus-Erie 450-W walker which was converted to service on rails to do a concrete placing job, as well as rock clean-up work.

The walker swings a 205-ft. boom, the longest handled by any crane in the entire Columbia Basin project area. The rig was brought to the job and converted to use on rails by Columbia River Constructors, a joint venture sponsored by Morrison-Knudsen Company, Inc., which holds a $40 million contract to build powerhouse and intake structures. Chief Joseph powerhouse will be the world's second-largest producer of hydroelectric power.

Prior to actual start of construction of the powerhouse, considerable fine excavation was necessary, a job that saw 19-yd. and 10-yd. Euclid dump truck beds swung from the Bucyrus-Erie walker as skips, filled with rock. Once the pour gets under way, the rig will handle Garbro buckets in placing much of the total of 800,000 cubic yards of concrete. The 450-W will pour the intake structure while two Washington Whirley cranes handle the powerhouse pour.

To adapt the walker to the task at hand, rails were laid at the top of the slope overlooking the excavated powerhouse site. The rig was mounted on eight four-wheel trucks, giving it 32 wheels running on the two rails. Sixteen wheels are chain-driven by four Master electric traction motors. These motors are served by a General Electric gen-

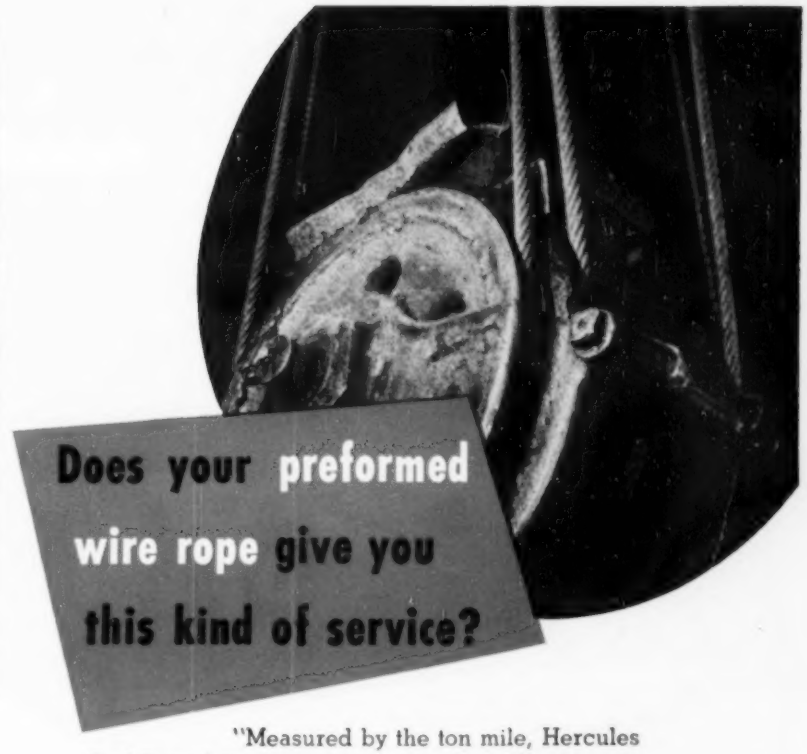
• Bucyrus-Erie walker, adapted to operate on track, swings 205-ft. boom to handle Garbro buckets in placing concrete on intake structure at eastern Washington's Chief Joseph Dam. Prior to that chore, rig joined in clean-up excavation work and handled 19- and 10-yd. Euclid dump truck beds as skips loaded with rock.

erator turned by an 850-hp. Cooper-Bessemer Diesel engine.

Crews welded the 450-W tub to a structural steel base. The base resembles those used by traveling cableway towers. Washington Iron Works, Seattle designed, built under-carriage.

Mounting the walker with its long boom on rails obviated the necessity of rigging an overhead craneway for the handling of concrete, for this rig moves easily and quickly. Reaching well out over the site of the pour, it will handle the buckets brought to it by railroad shuttle cars from the nearby mixing plant. Each car will carry three 4-yd. buckets.

Project manager for Columbia River Constructors is Phil J. Soukup while Col. N. A. Matthias, Seattle district engineer for the Corps of Engineers, represents the government.



"Measured by the ton mile, Hercules Red-Strand preformed outlasts others about two to one," reports one operations manager. Another operator testifies, "Our records show Red-Strand is considerably out in front of four other ropes."

Why HERCULES Red-Strand excels

What's the reason for such performance and praise? In simple terms, it's because *higher-than-rated quality* in Red-Strand preformed delivers *longer-than-expected service.*

If you're not completely satisfied with *your* wire rope service, try Red-Strand preformed. You'll experience the difference too.

HERCULES® Red-Strand wire rope made by A. Leschen & Sons Rope Company, St. Louis 12, Missouri

In business only to make wire rope ... better wire rope ... since 1857

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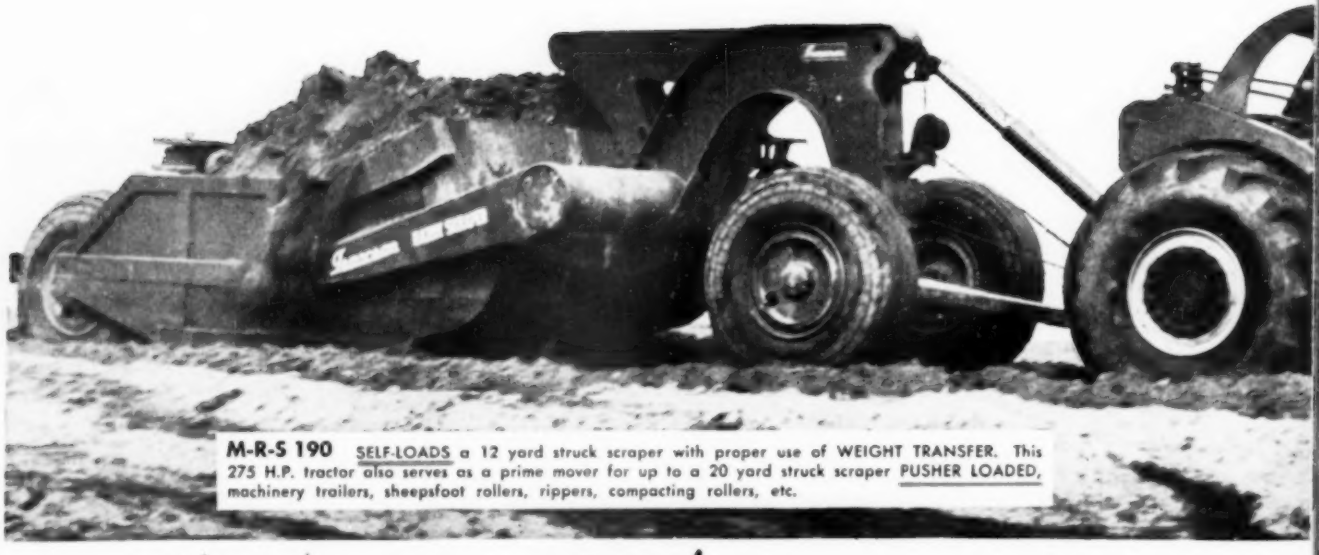
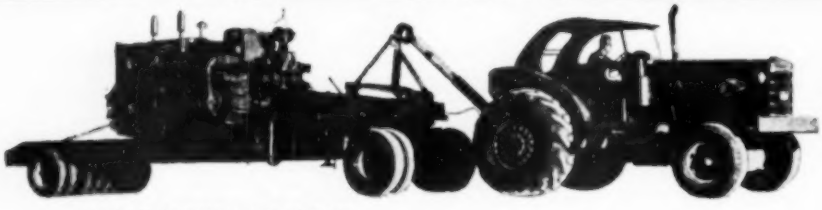
DISTRIBUTORS IN ALL PRINCIPAL CITIES

No other tractor
SELF - LOAD

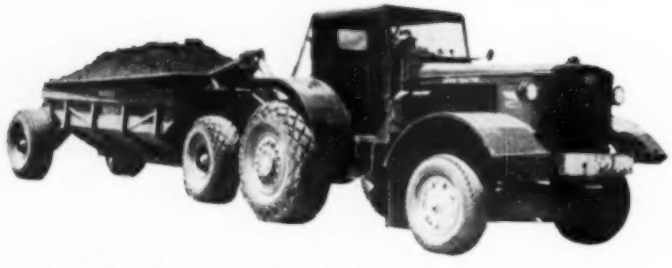


M-R-S 190 SELF-LOADS a 12 yard struck scraper with proper use of WEIGHT TRANSFER. This 275 H.P. tractor also serves as a prime mover for up to a 20 yard struck scraper PUSHER LOADED, machinery trailers, sheepsfoot rollers, rippers, compacting rollers, etc.



M-R-S 150 AND MACHINERY TRAILER

M-R-S 150 — 200 H.P.
Recommended as a prime mover to ***self-load*** up to a 10 yard struck scraper or as a prime mover for up to a 17 yard struck four wheel scraper ***pusher loaded.*** Also provides power for bottom dump Mississippi Wagons, heavy compacting rollers, machinery trailers or for general utility.



M-R-S 125 AND BOTTOM-DUMP MISSISSIPPI WAGON

M-R-S 125 — 125 H.P.
Recommended as a prime mover to ***self-load*** up to an 8 yard struck scraper or as a prime mover for up to a 13½ yard struck four wheel scraper ***pusher loaded.*** Also provides power for bottom dump Mississippi Wagons, sheepsfoot rollers, heavy compacting rollers, or for general utility.

THE EMBLEM M-R-S OF DEPENDABILITY

MANUFACTURING

can match this

ING Production *and* Versatility

Compare this outstanding performance with any tractor on today's market!

Only M-R-S offers you all the big advantages of a rubber tired prime mover — PLUS versatility that means big savings in equipment investment. You save in another way, too . . . with M-R-S you add a fast, profitable rubber tired dirt moving team using the four wheel cable scraper you ***already own!***

The high traction and drawbar pull which result from the exclusive WEIGHT TRANSFER enables M-R-S tractors to serve as prime movers for any size or make scraper up to 20 yards struck capacity.

Look at these typical production results obtained with an M-R-S tractor:

HAUL: 600 Ft. One Way — Self-Load

	M-R-S 150 & 10 Yd. Struck Scraper	Larger Crawler & 10 Yd. Struck Scraper
Total Production Per Hour (50 min.)	120 yds.	80 yds.
Gross Income Per Hr. at 12c cu. yd. (Estimated contract price for Scraper Operations Only)	$14.40	$9.60
Less estimated direct operating cost	$9.82	$8.22
Estimated net operating profit	$4.58	$1.15
Ratio of M-R-S Production	150%	100%
Estimated ratio of M-R-S Profit	398%	100%

*Production taken from an actual on the job test, and calculations made to estimate the possible increased profit ratio resulting from the increased production actually secured.

For outstanding results like those shown above team your scrapers up with M-R-S tractors . . . make them pay off again BETTER THAN EVER!

COMPANY

FLORA AND JACKSON
MISSISSIPPI, U. S. A.

News from the Field

'53 Construction May Reach New Peak

A '53 construction year reaching $44 billion in the United States was recently forecast by the Associated General Contractors of America. An additional $1 billion investment in overseas construction by the federal government is also expected.

If the figures stand up, another new peak in the total volume of construction activity will have been reached.

The A. G. C. estimated a record $42.3 billion construction check for the United States in 1952. The figure represents more than 12% of the nation's estimated gross national product. It spelled employment for about 7½ million persons.

In addition, the federal government invested more than ¾ of a billion dollars in new construction outside the continental United States last year, most of which went into bases for the armed forces.

The 1952 total of $42.3 billion within the U. S. consisted of about $32.3 billion in new construction and approximately $10 billion in maintenance and repair of existing structures. About $33.5 billion of the 1953 estimate would be new construction.

Abnormal activity is expected in a few states due principally to large outlays in atomic energy and toll road facilities—particularly the atomic energy and toll road programs in Ohio and New York.

Public construction as a whole will also rise to more than $11 billion. Decreases are expected in public housing and hospital building.

For the third straight year, construction walked off with the honors as the nation's greatest production activity. It surpassed traditionally top-ranked agriculture by 12½%.

The contractors' association, representing more than 6200 leading contracting firms throughout the United States and Alaska, gave the following 1953 outlook by types:

Residential—Expected to increase slightly in expenditure to $11.5 billion principally because this year started with more houses already under way. Public housing is due to decrease.

Private Industrial—Expect decrease of as much as 25%. However, business has indicated continuing high capital investment plans for the first quarter of 1953.

Commercial—Construction of warehouses, office and loft buildings, stores, restaurants, and garages is expected to spurt at least 25% from 1952.

Public Utilities—Due to rise for tenth successive year by more than 10% to about $4.4 billion; led by the gas and electric light and power group which has an extensive backlog of needed construction. Gas pipelines are scheduled for big increase.

Military, Naval, and *Atomic Energy* — Military and naval construction, just getting into full swing in the current program, is expected to increase nearly 20% to some $1.6 billion. Public industrial work, spurred by great scheduled increases in atomic energy facilities, should reach about $1.7 billion. Both categories would be highest since wartime 1943.

Public Educational — The highest number of elementary and secondary classrooms in history should be built this year, estimated at more than 50,000, with total educational construction costing perhaps $1.8 billion.

Highways—Booming toll road construction, combined with urban expressways and other highway work, are expected to reach at least $3 billion. This is largely state and local work.

• A 34,000-lb. Tournadozer, built by R. G. LeTourneau, Inc., Peoria, Ill., is backed up loading ramp into gaping jaws of U. S. Air Force cargo plane. Seven Tournadozers were recently airlifted to Korea from Japan to be used in finishing airfield before freezing weather. Tournadozer is heaviest single piece of equipment yet handled by combat cargo aircraft.

Cabinet Post to George M. Humphrey

George M. Humphrey was appointed late last year to the cabinet post of Secretary of the U. S. Treasury by President Eisenhower.

One of the nation's leading industrialists, Mr. Humphrey had been president of the M. A. Hanna Co. of

ROCK RATED!

for the hardest years ahead

Your profits depend on the strength and speed of loading equipment — and P&H gives you more of *both*.

P&H *greater strength* comes from welded alloy steels — the toughest construction known. No wonder P&H can take pounding and shock loads that K.O. less rugged machines.

P&H *greater speed* comes from Magnetorque* Electric Swing — actually 15% to 25% faster than any other machine of its size to give you greater production, lower tonnage costs. And it's goodbye to maintenance and replacement problems for years to come . . . Magnetorque lasts the life of your P&H.

But to get fully acquainted with this outstanding producer, let us direct you to a 955-A in action. If you want bigger capacity, same advanced design, ask about the P&H 1055-A (3½ yd.)

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MAGNETORQUE*

Electric Swing puts you beyond the "clutches of wear"

*T.M. of Harnischfeger Corporation for electro-magnetic type coupling.

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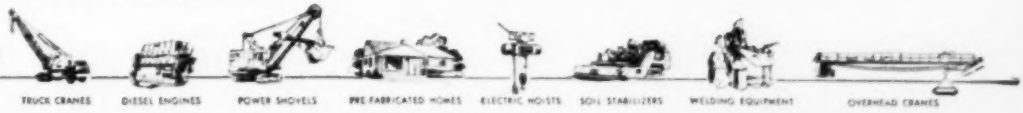

TRUCK CRANES · DIESEL ENGINES · POWER SHOVELS · PRE-FABRICATED HOMES · ELECTRIC HOISTS · SOIL STABILIZERS · WELDING EQUIPMENT · OVERHEAD CRANES

• While big 30 cubic yard dragline strips overburden at Morton Mine, pumps work 24 hours a day to lower water level at what may be world's wettest mine. On twin floats are two 2500 gpm Figure 5814 Fairbanks-Morse centrifugal pumps driven by 250 hp F-M induction motors.

Cleveland, O. from 1929 to 1952. At the time the news of Mr. Humphrey's appointment was made public he was serving as chairman of the board of the M. A. Hanna Co.

World's Wettest Mine Pumped for Ore Yield

What is believed to be the world's wettest mine will be yielding iron ore in 1953 thanks to a pumping operation of mammoth proportions. The mine is the Morton Mine in Minnesota's rich Mesabi Range.

Literally billions of gallons have been pumped since work started in 1950 and billions more must be withdrawn to bring water level below the ore formation.

The pumps on this giant job range in size from 1000 gpm Fairbanks-Morse centrifugals to a big 3500 gpm F-M turbine pump. The ingenuity displayed by M. A. Hanna Co. engineers in solving the pumping problem is characteristic of the planning which is converting an old abandoned mine into a valuable ore producer.

Morton began as a shaft mine back in 1910 with excavation under compressed air. A concrete shaft with inside diameter of 21 feet and reinforced concrete walls 4-ft. thick was cast on the surface and dropped into the hole. From this 187-ft. vertical shaft, timbered shafts extended into the formation down to a depth of 350 feet from the surface.

Because of excessive water, there were repeated cave-ins and washes and the mine was abandoned after only 200,000 tons of ore had been taken out. Nearly 40 years later, it was decided that Morton could produce profitably

DON'T LET COLD WEATHER TIE-UP YOUR OPERATOR OR EQUIPMENT

Increase Operator and Equipment Efficiency with

Heat-Houser Industrial

EASILY installed, compact and with plenty of operator room and vision a HEAT-HOUSER offers cold weather protection for operator and tractor. Heavy duty waterproofed canvas plus many design features will make HEAT-HOUSER a must with your equipment.

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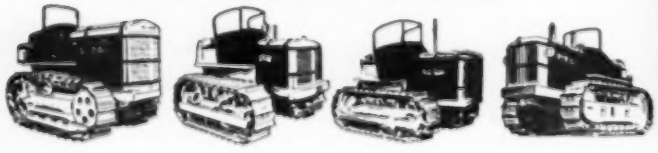

FORT DODGE TENT & AWNING CO.
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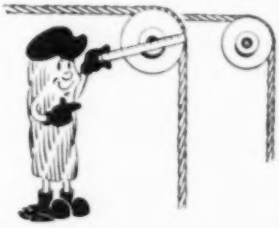
Shovel and Dragline Operators

do you want to cut operating costs?

J&L STEEL

Here are a few tips on longer Wire Rope Service Life!



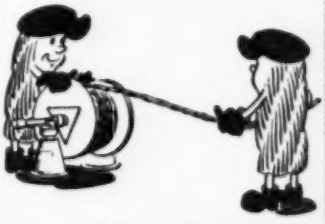
Avoid Small Drums and Sheaves

Keep Lines from Rubbing

Keep Drums and Sheaves Aligned

Check Your Sheave and Drum Grooves

Lubricate Your Lines Regularly



Use Jacks When Transferring Lines from Reel to Drum

SPECIFY J&L WIRE ROPES FOR YOUR EQUIPMENT

Proof of the value of any wire rope lies in its performance on the job. The unexcelled performance record of J&L Wire Ropes can be traced to J&L's *quality control* method of manufacture. *Quality control* that ensures the finest finished product by regulating every step in the manufacture of wire rope from the mining of iron ore to final stranding and closing operations. The result is wire rope that provides maximum service life—helps keep your operating costs to a minimum by cutting down time for re-rigging and making possible maximum production per wire rope dollar.

If you're not already using J&L wire rope, why not contact your nearest J&L representative *today*.

JONES & LAUGHLIN STEEL CORPORATION
PITTSBURGH 30, PA.

with modern strip mining techniques utilizing large equipment.

A Model 1150-B Bucyrus-Erie dragline with bucket capacity of 30 cubic yards provided a digging capacity of 2000 cubic yards per hour. Also installed were a mobile hopper and screening plant and a 48-in. Goodyear belt conveyor, a mile long initially and expected to extend more than two miles eventually. Also utilized were Bucyrus-Erie 170-B 7½-yd. shovels and 34-ton Euclid dump trucks.

First major undertaking was the stripping of overburden which had an average depth of 190 feet and a maximum of 240 feet. When the stripping operations started in 1950, the company found water within five feet of the surface while taking the first leveling cut.

It was evident that large-scale pumping would be an essential element in this development program. First step was to install three 1500 gpm deep well pumps in the old concrete shaft.

Next, they put in a drainage cut along the south side of the area to be stripped. This big drainage ditch was 60-ft. deep, 200-ft. wide and 1500-ft. long and deepened into a sump at one end.

Pumps mounted on specially constructed metal floats sent sump water over the hill and completely out of the drainage area. First, sump pumps were used and then, when the water, cleared, centrifugal pumps.

As the work progressed and water collected, additional sumps were dug and more pumps installed. As many as three sumps have been utilized at one time and, at peak periods, six pumps were in service.

• Awaiting installation when this picture was taken was a Fairbanks-Morse Pomona deep well turbine pump with capacity of 3500 gpm at 350-ft. head. It was largest pump on Morton job.

Two floats were layed side by side in a single sump. On each float was mounted an 8-in. Fig. 5814 Fairbanks-Morse horizontal centrifugal pump with rated capacity of 2500 gpm at 300-ft. head. The two 8-in. discharge lines from the pair of pumps joined in a 16-in. line which carried the water over the hill.

Work was in progress on a 20-in. line which would take the water 6500 ft. to a swampy area. These two pumps were adequate to keep surface water down but considerably greater volume was needed to drop water level below the ore formation. Work was being completed on a new float which carried two 5-in. Fig. 5912E Fairbanks-Morse centrifugal pumps rated at 1000 gpm at 300-ft. head.

Initially, Morton engineers used whatever pumps they had or could borrow, then replaced them as necessary with units specifically acquired for the big job. On hand and ready for installation is the biggest pump assigned to the Morton Project. This is a Fairbanks-Morse Pomona deep well turbine pump with capacity of 3500 gpm at 350-ft. head.

The big pump will be installed in the original shaft where an 1800 gpm turbine pump is already in service.

The volume of water pumped from this mine is huge, actually more than is handled by the water system of the average city of 100,000 population. During peak periods, the pumps have handled as much as 21.6 million gal. per day. Morton must pump 4.5 million gpd just to hold its own without lowering water level. Under these circumstances, pumping is a continuous job 24 hours a day, 365 days a year.

The job of stripping overburden is proceeding well ahead of schedule. It

More Water for New York

• Granite lining will cover earth-filled Downsville Dam, the New York Board of Water Supply's structure now more than 60% completed. Impounding waters of Delaware River, project will be linked with New York City water system 100 miles away through a series of canals, tunnels, and aquaducts. Here Lima crawler crane places granite blocks while Northwest truck crane wields concrete bucket.

Why Your Best Bet for Tractor-Scraper Work is the . . .

BIG RED TEAM

Big Red Team — Bucyrus-Erie B-170A Scraper and International TD-24 Tractor — loading shale for a Louisiana aggregate plant.

Meant to Work Together — Bucyrus-Erie B-170A and B-250 Scrapers were designed especially to work with the International TD-24 Tractor — to fully apply its great power and speed, and to assure maximum efficiency.

Big Capacity — Bucyrus-Erie Scrapers have it! The 16-yd. (struck) B-170A is the largest of scrapers for loading without pusher help. The B-250 (22-yd. struck) is the biggest scraper in current production.

Best by Competitive Test — In field tests, where loads were actually weighed and trip cycles accurately timed, the Big Red Team consistently outperformed other tractor-scraper units at a lower cost per yard. 40T52C

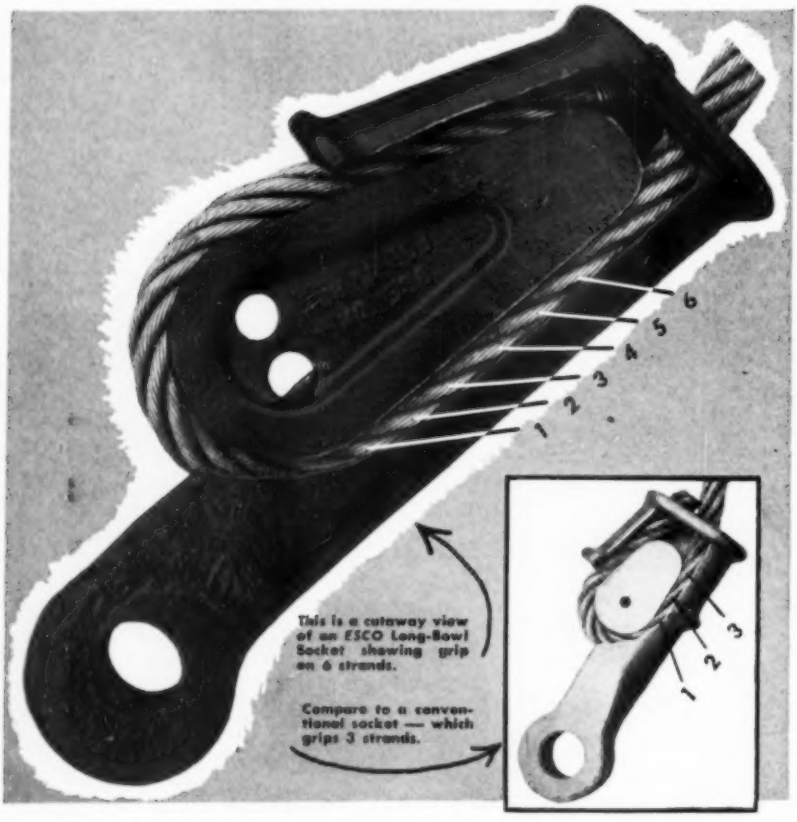
Find out more about the dirt-hauling member of the BIG RED TEAM **— see your** *International Industrial Tractor Distributor* **for full details on Bucyrus-Erie B-Type Scrapers.**

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

GRIPS ALL 6 STRANDS

to make wire rope last longer!



ESCO LONG-BOWL® SOCKETS IMPROVE DRAG ROPE LIFE

ESCO LONG-BOWL SOCKETS take wire rope sizes ⅓" to 2⅛", develop more than 90% of rope strength. Extra-strong, yet easy to take apart and assemble. No kinking!

When Breaks Occur Due to Uneven Strand Loading

Extensive *ESCO* field and laboratory tests have demonstrated that a major cause of drag line breakage is uneven loading of the rope strands. And the cause of this faulty loading generally lies in a conventional rope socket which barely grips *three* of the six strands! In resocketing this type of break, as much as four feet of *good* rope must be discarded. As a rule, a few breaks make your remaining rope too short for use, and it, too, must be discarded!

With ESCO Long-Bowl Sockets, your drag line gets a chance to wear out — instead of shortening itself into discard! Write today for full details. Ask for Catalog 192.

ESCO

Offices and Warehouses: Honlulu, T. H., Houston, Texas, New York, N. Y., Los Angeles, San Francisco, California; Seattle, Spokane, Washington, Centralia, Pennsylvania, Eugene, Oregon, Salt Lake City, Utah. In Canada: Vancouver, B. C., and Toronto, Ontario.

Representatives in all Major Cities

ELECTRIC STEEL FOUNDRY CO.

2141 N. W. 25TH AVE., PORTLAND 10, ORE. 712 PORTER ST., DANVILLE, ILL.

was planned to strip about 700,000 tons in 1950 but actual production was double that in 1950 and triple that in 1951.

This progress would have been impossible without the continuous unfailing service of the high-volume pumps. A mine that water ruined in 1912 will be producing iron ore in 1953.

Poughkeepsie Branch Announces Promotions

The Poughkeepsie Branch of the H. O. Penn Machinery Co. of New York City recently promoted Thomas F. Whalen to parts manager. William Bahret, formerly in charge of parts will now become assistant to Branch Manager A. W. Ketcham, and will handle inside sales work as well as receipt, delivery, and inventory of all equipment.

George Keseg will also return to the Poughkeepsie parts department after an absence of several years which were spent in the service department.

Caterpillar Releases Film on its DW20

Caterpillar Tractor Co. of Peoria, Ill., recently completed a product film on the DW20 which it now has available for its dealers, according to a company announcement.

This educational-type film is devoted to the mechanical and operational advantages of the Caterpillar DW20 rubber-tired tractor and its matched trailing units which include the No. 20 scraper, W20 wagon, and PD20 trailer.

The 13-minute color and sound 16-mm film was taken at the Caterpillar proving grounds in Peoria by the company's motion picture production department.

Michigan Engineers to Meet

The Michigan Engineering Society will hold its annual meeting Friday and Saturday, April 10 and 11, 1953, at the new Kellogg Center Hotel on the Michigan State College campus, East Lansing, Mich.

Report New Jersey Turnpike Revenues

New revenue of the New Jersey turnpike authority during its first year of operation totaled $14,777,279, the agency recently revealed in a report to bondholders.

Covering the 12 months ended Nov. 30, 1952, the figure is before interest payments in turnpike bonds, which amount to $8 million a year.

Part of the cross-state toll super-

• Picture shows laying in of steam pipes and readying to put up sides for filling utilidor with ze-crete at Fort Richardson, Alaska. At left is 500-man barracks of reinforced concrete and concrete block. Contractor is Haddock-Engineers, Ltd. and Associates of Oceanside, Calif.

highway was opened in November 1951, with the entire 118-mile route opened early in 1952.

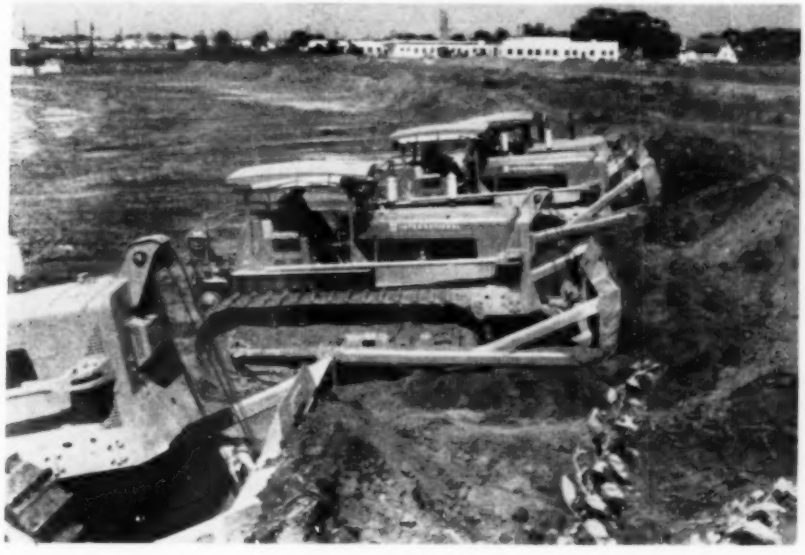
Receipts from tolls amounted to $15,457,747, with an additional $1,267,000 coming from gasoline stations and restaurant concessions. Total revenues for the year were $16,748,338, while expenses of all kinds came to $1,971,059. Passenger cars accounted for $12,661,136 of the toll receipts.

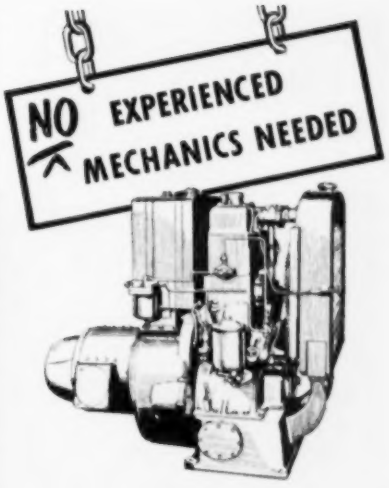
Alaskan Winter Overruled by Construction

In spite of below zero weather, construction activities continue during the winter on 45 Alaska defense projects.

The winter go-ahead results from planning and the ten years local supervisory experience of the Corps of Engineers. Earlier programs have schooled engineers and contractors to time

• Fleet of three International TD-24 crawler tractors and an International TD-18, equipped with Bucyrus-Erie bulldozers stockpile topsoil for fill and landscaping purposes on new housing project near Hicksville (Long Island), N. Y. Internationals are owned by Rapone Construction Co. of Hicksville.





. . . NORDBERG DIESEL ENGINES are easy to operate— simple to maintain

You just don't need special mechanical training to operate and maintain Nordberg "4FS" Diesel engines.

Their basic design and construction makes them easy to start and easy to keep going—day in, day out, with a minimum of attention. Routine maintenance is extremely simple . . . all parts are easy to get at.

These are reasons why Nordberg 1, 2 and 3-cylinder "4FS" Diesels are more and more in demand for all kinds of power jobs from 10 to 45 hp —for electric service from 6 to 30 kw (6,000 to 30,000 watts)—and for pumping jobs from 200 to 3000 gpm at 15 to 240 ft. total head.

Mail the coupon for full details.

NORDBERG MFG. CO., Milwaukee, Wis.

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BUILDERS OF AMERICA'S LARGEST LINE OF HEAVY-DUTY DIESELS

MAIL THIS COUPON TODAY

Nordberg Mfg. Co., Milwaukee, Wisconsin

Send catalog covering Nordberg Type 4FS Diesels. I am interested in a unit for the following service:

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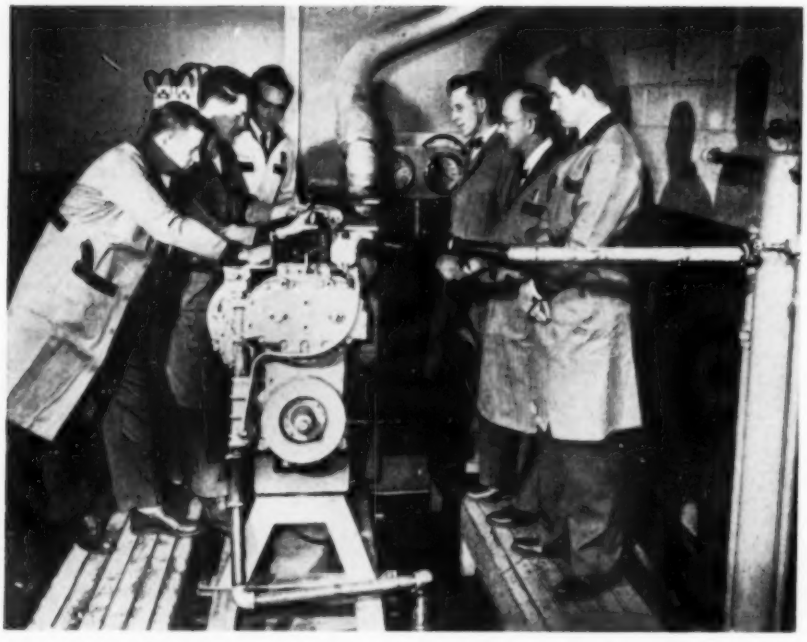


• View in Detroit Diesel's service training school where distributors' personnel are now given complete instruction in dynamometer testing.

construction so that many projects can be "buttoned up" each winter for interior finishing.

The result of the program is year 'round work on the major part of defense construction jobs.

Nineteen projects in the Fairbanks area are engaged in interior finishing. Only seven jobs here have closed down because of winter weather.

Eighteen projects in the Anchorage area continue active this winter while six have closed down to be resumed in the spring. Eight others scattered about Alaska remain busy.

Dynamometer Tests Becoming Standard Service

Running dynamometer tests on rebuilt and overhauled Diesel engines is rapidly becoming standard procedure in the service departments of many Diesel engine distributors and dealers.

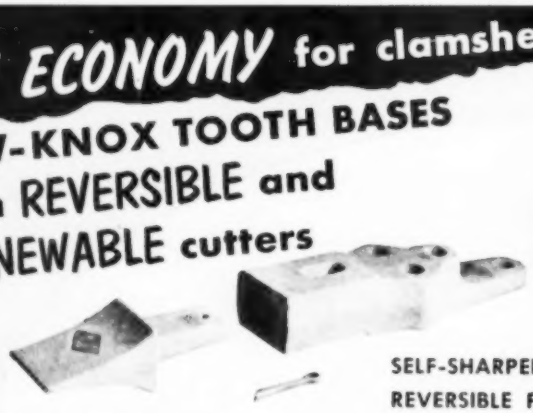
According to A. F. Brecht, service manager of the Detroit Diesel Engine Division of General Motors, a recent survey revealed that over 60% of the division's distributors had, within the last 18 months, made this service available to their customers.

This is an important advance in Diesel engine servicing, Brecht said. With this equipment distributors can assure owners their rebuilt engines will operate satisfactorily at the specified horsepower without further down-time for adjustment in the field.

The dynamometer run-in also provides a careful check under controlled conditions of newly assembled parts and workmanship. In addition piston rings, bearings, and other moving parts are seated to the extent that engines

NEW ECONOMY for clamshell buckets

BLAW-KNOX TOOTH BASES with REVERSIBLE and RENEWABLE cutters



The tapered shank of the cutter wedges securely into the tapered pocket in the base. For replacing or reversing, a sharp hammer blow on the sides of the cutter loosens it from the base.

SELF-SHARPENING FOR BETTER PERFORMANCE
REVERSIBLE FOR LONGER LIFE
QUICKLY AND EASILY REPLACED FOR ECONOMY
BASES ARE BOLTED TO THE LIPS AND ONLY THE CUTTERS ARE REPLACED

Blaw-Knox tooth bases are available with holes drilled for existing arrangement of tooth bolts on many Blaw-Knox Clamshell Buckets ranging in size from ⅜ to 1-cu. yd., in general purpose, rehandling, hard digging and round nose hard digging types. For some other bucket sizes, blank tooth bases can be drilled to suit existing bolt hole arrangements. See your Blaw-Knox distributor for full details about bases and cutters for *your* buckets.

BLAW-KNOX

BLAW-KNOX EQUIPMENT DIVISION
Blaw-Knox Company
Farmers Bank Bldg., Pittsburgh 22, Pa.

are ready for full-load operation as soon as they are returned to the job.

Complete instruction in dynamometer testing is now offered to distributors' personnel in Detroit Diesel's service training school.

States Reveal Road Finance Plans

Highway financing plans spotlighted state news early this year.

Kentucky: Governor Wetherby has announced that Kentucky is considering construction of a 40-mile turnpike between Louisville and Elizabethtown at a cost approximating $22 million. The turnpike would be financed by revenue bonds under terms of a 1950 toll road enabling act.

Iowa: Belief that a four-lane toll highway across Iowa could pay for itself in 29 years has been expressed by the Harrisburg, Pa., engineering firm of Gannett, Fleming, Corddory and Carpenter, Inc. The engineering firm accepted estimates that a proposed toll road would cost $140,393,000.

Idaho: A $30 million state bond issue to speed Idaho highway construction was recommended by the Idaho Project Adequate Roads Committee. Idaho now is free of bonded debt. Its last highway bond issue was in 1931, for $1.3 million. The PAR committee recommended a financing plan calling for issuance of $30 million in tax anticipation notes.

South Carolina: Plans of the South Carolina highway department for $22 million worth of construction during 1953 have been announced. About $2 million for resurfacing work to extend the life of old pavements is included in the total. About 1200 miles of roads will be built and surfaced. An $8.5 million maintenance program, including $1 million for replacement of worn-out or antiquated equipment, is also being considered.

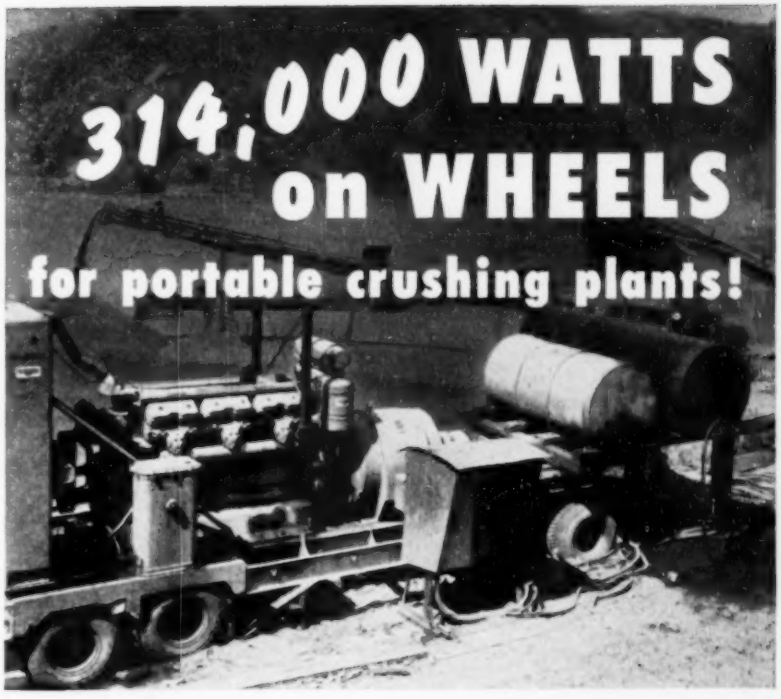
Virginia: The Virginia State Corporation Commission has granted the Old Dominion Turnpike Corp. a one-year extension from the 20th of February in which to start construction of its projected 70-mile toll highway across southwest Virginia. The highway is expected to cost between $60 million and $70 million.

Report U.S. 'Lost' 6000 Miles in '51

America "lost" more than 6000 miles of highway in 1951.

A study recently completed by the National Highway Users Conference discloses that a total of 6277 additional miles of urgently-needed highways

Continued on page 62



J. N. CONLEY, well-known Portland, Ore., contractor has cut operating costs by driving his crushing plants with thrifty electric motors, *powered by a giant, trailer-mounted diesel generator.* Conley's heavy-duty LaCrosse Low Bed Trailer gives his 314,000 watt generating plant easy mobility — permits moving power unit completely out of range of abrasive dirt and dust from crushers. Trailer rolls from job-to-job in minimum lost-time . . . *eliminates* cost of building permanent foundations. Compactly arranged on the trailer deck are: 314-KW, generator, 500-HP. diesel engine, complete panel control board, and an 86-gal.-capacity radiator for engine cooling. A gas engine compressor with two 15-cu.-ft. air tanks supply air for starting the motor. Why not find out the advantages you can gain by mechanizing your operations with job-proved LaCrosse Trailers. Choice of 85 low-cost production models — from 6 to 67 tons capacity — flat, drop or tilting platforms. Also custom-built models for special needs. Write TODAY!

LC-25

Check Today!

LaCROSSE TRAILER CORPORATION, LaCrosse, Wis.

☐ Rush complete information on LaCrosse trailers:
☐ Specifications ☐ Prices ☐ Delivery
☐ Send name of nearest LaCrosse Distributor.
☐ We may buy a ..... ton trailer about .....
(date)

Name.....Title.....
Employed by.....
Address.....
City.....State.....

LaCROSSE
America's Favorite LOW BED TRAILER

GRAVITY DUMP eliminates

SIMPLE BODY-RELEASE LEVER WORKS INSTANTANEOUSLY

1 Body release lever is located at steering wheel, no reaching or stretching. Lever engages trip rod on Dumptor body . . .

2 Trip rod instantly releases latch hooks from body latch seat on the Dumptor chassis frame. Gravity dumps the load . . .

3 Body rolls on heavy-duty rockers. Snub chains attached to big coil-spring shock-absorbers check body at 70-degree tilt.

KOEHRING HEAVY DUTY

body hoists

Koehring Dumptors have no slow-working body hoists. You trip the release lever and gravity dumps the 6-yard load in one second.

Cuts maintenance costs . . . there are no complicated mechanical hoists to slow up haul cycles . . . no expensive hoist replacement parts, maintenance or down time to eat into your profits. And gravity dump is always instantaneous, trouble-free in all temperature extremes . . . never wears out.

No spring maintenance is another money-saving advantage you get with Koehring Dumptors. There is just one big, double-coil chassis spring on steering axle . . . none on driving axle. Big shock-absorbing drive tires eliminate need for more springs . . . save spring maintenance time and replacement costs.

Check your body hoist and spring maintenance costs for a year . . . see how much you will save when you haul with heavy-duty Dumptors. In addition, Koehring constant-mesh transmission gives Dumptor the same 3-speed travel forward and reverse for "no-turn" shuttle hauling . . . increases production and your profits.

Get complete facts and figures from your Koehring distributor . . . or write to us for informative 28-page Dumptor® catalog.

KOEHRING CO.

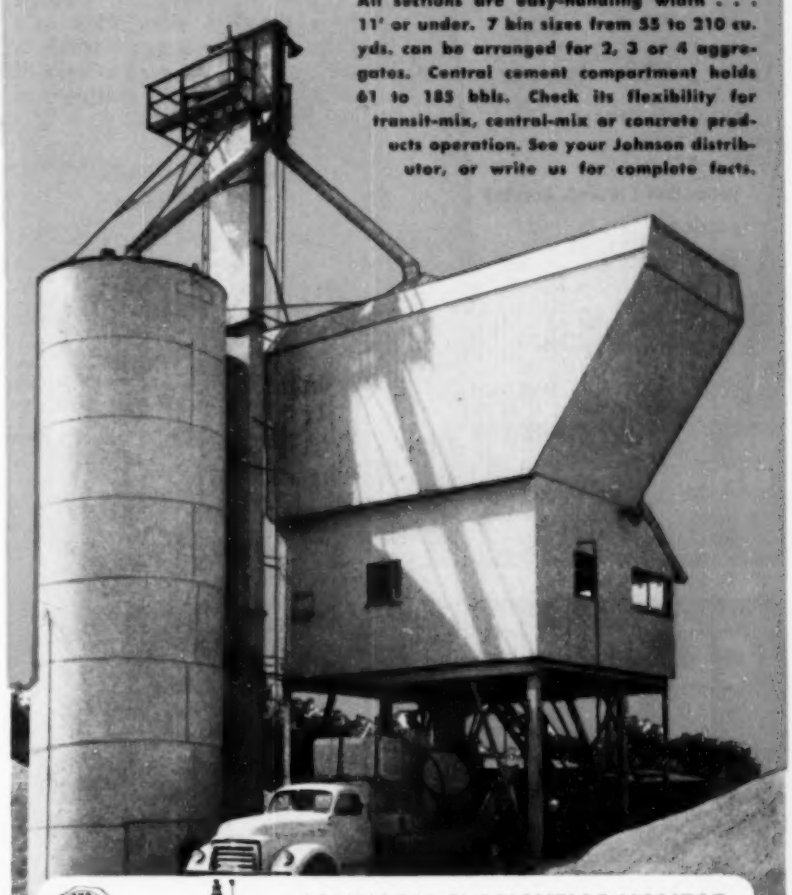
Milwaukee 16, Wis. Subsidiaries:
PARSONS • KWIK-MIX • JOHNSON

CK234

all welded . . . PORTABLE

FOR TRANSIT-MIX • CENTRAL-MIX • CONCRETE PRODUCTS

Quickly moved to reduce haul distance of mixed concrete, Johnson Transit-Mix Plant has all-welded, easily-assembled units. Its portable-section Tandem Bin minimizes field bolting . . . dismantling, erecting take less than half the time required for moving a bolted plant. All sections are easy-handling width . . . 11' or under. 7 bin sizes from 55 to 210 cu. yds. can be arranged for 2, 3 or 4 aggregates. Central cement compartment holds 61 to 185 bbls. Check its flexibility for transit-mix, central-mix or concrete products operation. See your Johnson distributor, or write us for complete facts.



JOHNSON CLAMSHELLS HANDLE EXTRA TONNAGE *because:*

- **Large diameter sheaves, with fully sealed needle bearings, reduce friction power loss, deliver full power to cutting lips.**
- **All-welded construction improves bucket balance, lowers center of gravity, lets teeth dig in straight and deep for capacity load in any material.**
- **Hard manganese cutting edge, welded to lips, gets tougher with use, assures long life.**
- **10 sizes . . . ⅜ to 3 yards . . . General Purpose, Wide Rehandling and Heavy-Duty Digging types. Write for new catalog.**

X13

(Koehring Subsidiary) **C. S. JOHNSON CO.** CHAMPAIGN, ILLINOIS

RUBBER TIRED SCRAPERS and WAGON UNITS

Used rubber tired units of the following makes are available in both 2- and 4-wheel models.

LE TOURNEAU
- C11-E16
- Super C
- C

LA PLANT-CHOATE
- TS200
- TS300

WOOLRIDGE TERRA COBRAS

EUCLIDS

CATERPILLAR
- DW10 and Scrapers

All units offered subject to prior sale

WRITE — WIRE — CALL your needs

WM. H. ZIEGLER CO., INC.
2929 University Ave. S. E.
Minneapolis, Minnesota
GL 7971

NEWCO* WIRE ROPE
CLAMP
AND THIMBLE
*Trade mark
..the heavier the load, the tighter it holds!

- **NO SLIPPAGE**
- **11 SIZES TO FIT WIRE ROPES FROM ⅛" TO 1"**
- **DEVELOPS 85 TO 90% ULTIMATE ROPE STRENGTH (95 to 100% Catalog List)**

The strongest and most efficient attachment for wire rope. Made of permanent castings with standard replaceable bolts and nuts. NO WRONG SIDE—threads either way. Easy to install and never needs lubricating.

See your distributor or write direct to

NEWMAN MFG. & SALES CO., Inc.
Dept. EE-2 Box 5939, Kansas City 2, Mo.

News

Continued from page 59

could have been built if 26 states had not diverted part of their highway user revenues to non-highway purposes last year.

Based upon data contained in reports of the Bureau of Public Roads, the study discloses further that the total number of miles "lost" through diversion practices since 1934 now stands at 121,487—a figure which is greater than the total road mileage of any single state with the exception of Illinois, Kansas, and Texas.

Asphalt Institute Elects Officers

The board of directors of the Asphalt Institute has chosen as chairman of the executive committee D. N. Myers, president of Byerlyte Corp., Cleveland, O. Bernard E. Gray was re-elected president.

The Institute directors represent the major part of the petroleum asphalt industry of the United States and Canada.

The election took place at the Institute's annual meeting in New York city last December. The offices are posted for 1953.

Advanced Welding School Graduates 562 Students

During the 1952 term, a total of 562 advanced welders were trained in the Eutectic Welding Institute's classes in Flushing, N. Y., and its new West Coast school which graduated its first group in September.

The Institute's training program, a continuing service of the Eutectic Welding Alloys Corp., is considered unique in the welding field since it

• Here is a safety cartoon which we think bears repeating. It points out a few common-sense precautions for blast hole drill operators. The M. A. Hanna Co. published the original cartoon in the November 1952, issue of its magazine, *The Hanna Mines*.

STOP THE DRILL WHEN MAKING REPAIRS OR FREEING CROSSED CABLES.
ZIP
WHEN USING THE SANDLINE TO SKID BITS UP TO THE DRILLING RIG OPERATOR AND HELPER SHOULD BE IN THE CLEAR!
SNAP! WHAM!
ZIP
WEAR AND USE YOUR SAFETY BELT WHEN YOU ARE WORKING ON THE DRILL MAST. LEAVE THE ACROBATICS TO THE CIRCUS EXPERTS!
WORK Safely
WORLEY

Bert T. Macy

Bert T. Macy, manager of the parts and accessories department of Sauerman Bros., Inc., Chicago, Ill., died at his home in that city on the 27th of December, after a short illness. He was 66 years old. Mr. Macy had been with Sauerman Bros., Inc. for 31 years and had been a department head for most of that period. Previously he had been with the Chicago office of the American Steel & Wire Co.

trains only advanced welders in the most modern welding techniques by means of "conference type" practical training "clinics." By immediately following a short lecture period with detailed practical demonstrations, in which the students join, the welders actually use new labor and time-saving welding methods to solve problems they may have encountered in the field.

To provide individualized and personalized instruction for each advanced welder, the classes are limited in size. Each course takes a full week, with classes held every two weeks throughout the entire year.

Safe Truck Operation Is Slidefilm Theme

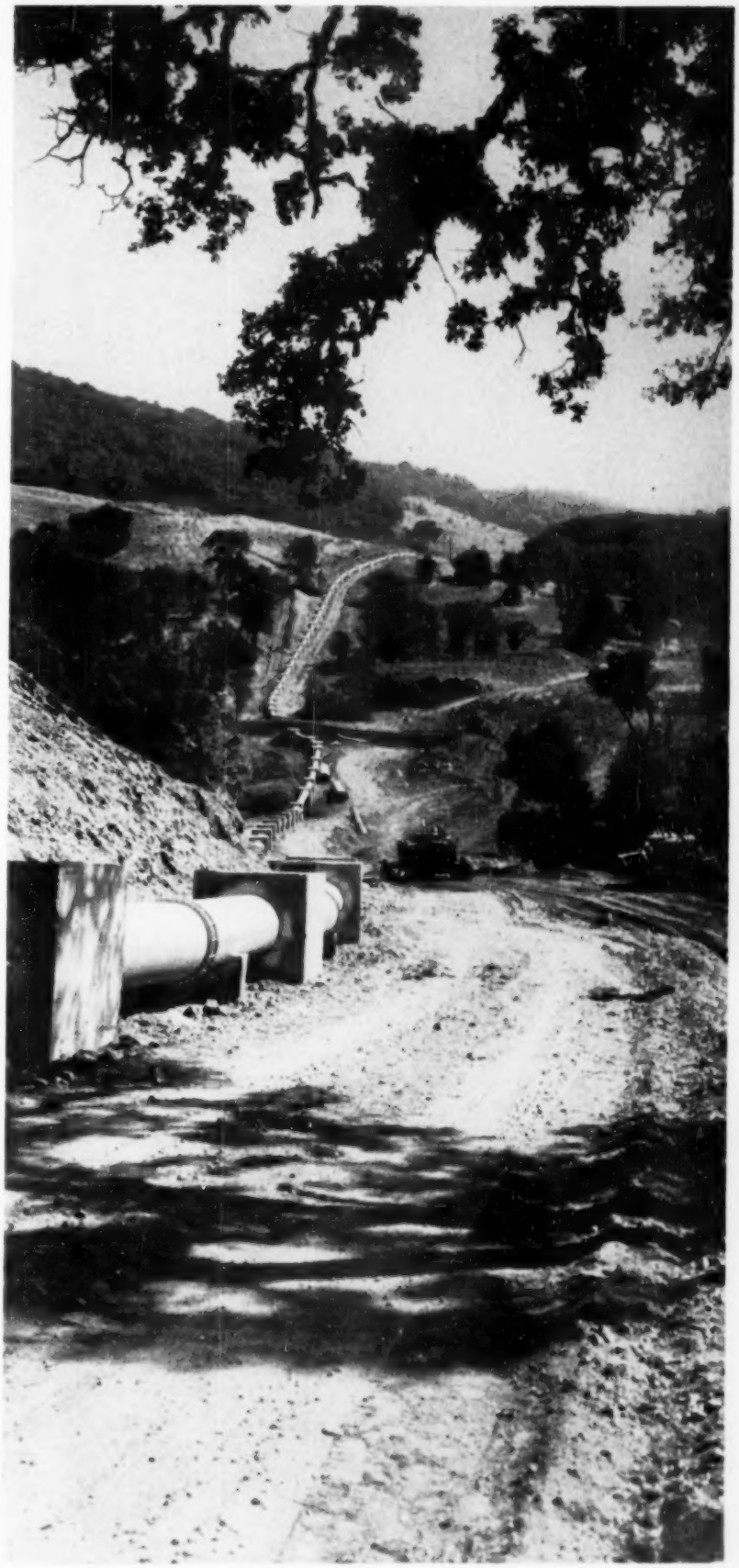
The National Safety Council has just released a new sound slidefilm "Operating Heavy Duty Trucks Safely."

The film is pointed at safe practices for preventing most frequent and serious accidents in driving, on the dump, in towing, getting on and off, riding, and other major sources of injuries. The film includes accident shots.

Film size is 35mm, consisting of 75 frames. Narration is provided. The film is available only on the purchase basis.

Dam to Aid Calif. Farm Region

Another highly important portion of the Santa Clara, Calif. Valley Water Conservation District's program, designed to restore the falling water level of a highly productive agricultural region, is being completed with construc-



• This is part of Lexington Dam project under construction near Los Gatos, Calif. Releases of water from storage will be made through pipes encased in concrete. Guy F. Atkinson Co. of San Francisco, has Caterpillar DW20, DW10, and D8 Diesel tractors and motor graders on job.

● Caterpillar DW20 Diesel tractor with No. 20 scraper is seen employed on earthmoving phase of construction of Lexington Dam in California's Santa Clara valley. In left background, Bucyrus-Erie 54-B shovel with 2½-yd. dipper loads Euclid end-dump. Dam will hold back flood waters that otherwise waste into south end of San Francisco Bay.

tion of Lexington Dam, on Los Gatos Creek.

The contractor, the Guy F. Atkinson Co., South San Francisco, Calif., concentrated a huge fleet of equipment to finish construction before winter rains set in.

The dam will not only impound flood waters that otherwise waste into the south end of San Francisco Bay, but will also eliminate flood damage that has occurred in the past.

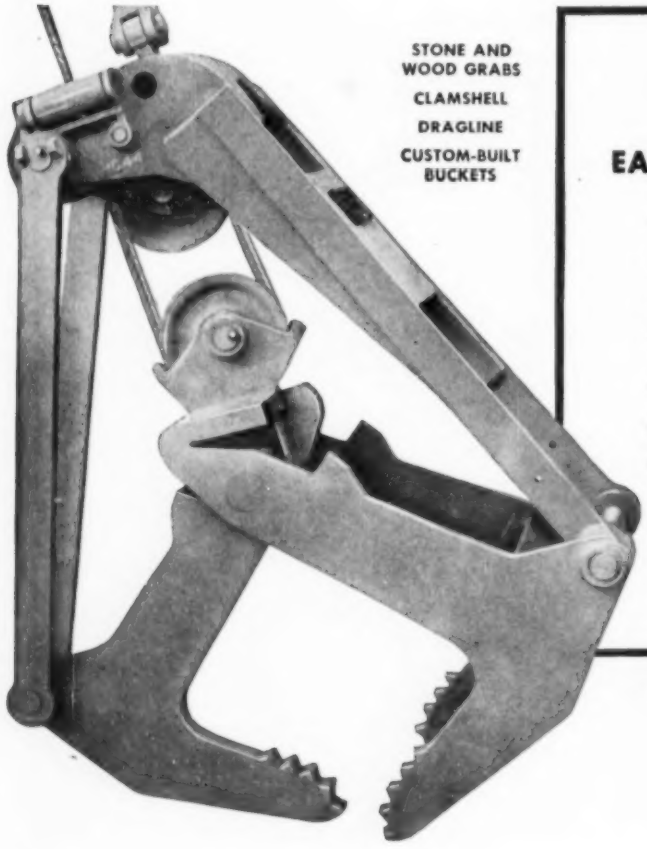
The creek is the last remaining major source of additional water supply for the Santa Clara district. On this creek the average annual waste has been over 27,000 acre feet. The dam, with a reservoir having a storage capacity of 25,000 acre feet, will salvage virtually all the entire average annual wasted water.

Lexington Dam is an earthfill structure, 175 feet high with a top width of 50 feet and a maximum thickness through the base of 1200 feet. A concrete-lined spillway near the west end of the structure will be able to carry the largest flood on the creek.

Releases from the storage will be made through pipes encased in concrete, passing through the dam near the base, with flow through outlet pipes controlled by valves.

Before construction of the dam itself could be started under a $1,433,310 contract, it was necessary to relocate the Los Gatos-Santa Cruz highway around the site of the dam, relocate considerable county road, move a cable of the Pacific Telephone and Telegraph Co., and move the San Jose water works flume and diversion dam.

The Atkinson Co. made history in



STONE AND WOOD GRABS
CLAMSHELL
DRAGLINE
CUSTOM-BUILT BUCKETS

WELLMAN

EASY HANDLING OF LARGE STONES

● Those big stones won't slip from the Wellman Stone Grab. Four-part closing cable reeving develops tremendous closing force on stones. Model shown has 5-ton capacity, 4½ foot jaw spread. Other capacities available.

Want Facts? Send for free descriptive bulletins.

THE WELLMAN ENGINEERING COMPANY
7000 Central Avenue
Cleveland 4, Ohio

relocating 1.77 miles of main highway between Los Gatos and Santa Cruz. The contract, with the state division of highways, was about $1.4 million and involved moving almost 2 million yards of highway fill, more than half of it being used in one fill 800 feet long with a maximum depth of 135 feet.

This so-called "big fill" is the largest highway fill in California's history of rugged road building. In constructing the record fill it was necessary to house one creek, which runs through the fill, in a 120-in. concrete barrel, 840 feet long. The roadway, finished in September 1951, consists of four blacktopped lanes with an 8-ft. shoulder on each side for a total width of 70 feet.

Suggest Economy Steps For Penn. Roads

Multiple-lane highway constructors should make greater use of separate opposing lanes, both in alignment and grade, to take advantage of most suitable terrain.

The recommendation came from the Pennsylvania "Little Hoover" committee in a recent report to the State highway department.

"The savings in construction costs would more than offset the additional cost of the wider right-of-way," the committee said.

The committee also called for simpler design of rural roads. Pointing to over-design for rural roads carrying low volumes of traffic, the committee declared: "Insistence on perfect alignment and grades of these roads frequently results in exorbitant property damage and right-of-way settlement."

The committee recommended that a special right-of-way chief be named to cope with the problem of rising right-of-way expenditures in recent years.

The study group found the highway department to be well administered and run in an economical and consistent manner.

Wyoming Continues Air Field Expansion

The Wyoming state aeronautics commission recently revealed in its biennial report that there are now only 10 towns of more than 500 population in the entire state that do not have landing fields.

As the result of federal and state-aid programs, every city of more than 10,000 population in Wyoming has an airport with two or more surfaced runways with lengths exceeding 6000 feet, according to the report.

Made public by State Aeronautics Director George M. Nelson, the report further disclosed that every city of

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ROGERS BROS. CORP.
ALBION, PENNA.

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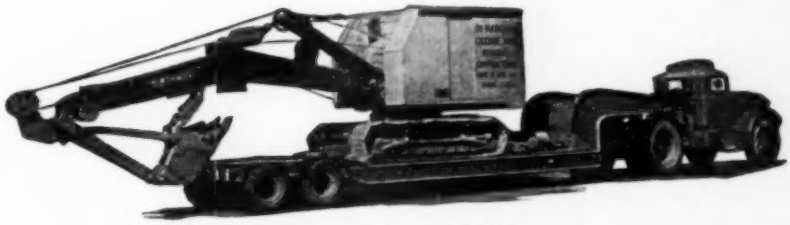


A Rogers Type "D" Trailer

Export Office: 50 Church St., New York 7, N. Y., U. S. A. Cable Address: Brosites

more than 3500 population, except Evanston, has scheduled airline service or an airport developed or improved under the program.

Every town of over 1500 population, except Evanston and Green River, has an improved landing strip suitable for use by aircraft as large as DC-3 type. There are 20 towns under 1500 population with airports maintained for smaller aircraft.

During the 1951-52 biennium, a total of $316,061.95 was distributed for airport improvement in Cheyenne, Cody, Douglas, Lander, Lovell, and Newcastle. That total includes $200,957.43 in federal funds, $28,374.27 in state funds, and $84,186.63 in matching city funds.

Tentative plans for Wyoming airport development during the 1953-54 period were listed by the report as including construction of a control tower at Casper, grading and surfacing at Riverton, resealing at Rock Springs, grading and draining at Dubois, lighting project at Lander, apron surfacing at Cheyenne, lighting project at Wheatland, grading and draining at Lovell-Crowley, administration building at Worland, revision of lights at Laramie, resealing at Rawlins and development of north-south runway and grading and draining at Jackson.

● Sizable excavation required for this sewer is shown from this view at the top of cut. Form work for concrete is still in place. Front of this is exposed pipe with reinforcing in place ready for forms and concrete. Twin sewer system was laid for Monsanto, Ill. heavy industries.

Twin Sewer Line Serves Town's Heavy Industry

To meet the unusual demands on its sewers by heavy industry, the village of Monsanto, Ill. recently installed a twin industrial sewer to serve the following companies: American Zinc; Darling Fertilizer; Lewin-Mathes; Monsanto Chemical; Midwest Rubber Reclaiming; and Socony-Vacuum.

Engineers found the dual line sewer system necessary when they decided on vitrified clay pipe for the job. The volume of wastes to be carried by the sewer required more capacity than a single 36-in. diameter-clay pipe.

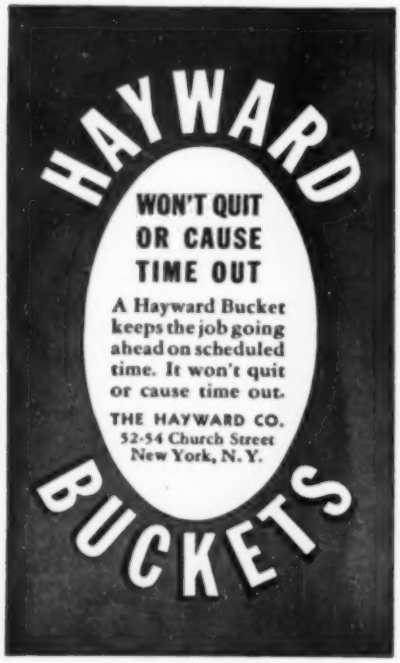
The sewer runs for 1350 feet, through an area of soft, sandy soil. Contractor Joseph P. Keeley, East St. Louis, Ill., had to cut a trench from 18 to 22 feet deep, with wide sloping wall. Great quantities of spoil had to be removed for the trench.

As a precaution against the pipe shifting during backfilling, or being overloaded, an encasement was laid. A reinforced concrete cradle was first poured at the bottom of the trench. Parallel lines of clay pipe were laid on this cradle.

Each section of pipe was anchored firmly in place with steel strapping hooked into steel eyes imbedded in the cradle. A precast concrete bulkhead was placed at every 15th section of pipe, to act as an end retaining wall for pouring concrete.

The contractor made short, frequent pours due to the ever-present possibility of rain, which might wash sand under the cradles and around the pipe, and would be expensive to remove.

After each few feet of clay pipe joints had been sealed, steel reinforcing bars were installed between the two pipe lines, and along each side. Plywood forms were then erected to form retaining walls along the sides, and the wet concrete encasement poured. Contractor Keeley used the same forms over and over by simply moving them.



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"FASTER FOR FOSTER"
ALL LENGTHS & ALL SECTIONS TO MEET ALL YOUR JOB NEEDS
Foster's lower rental rates on all standard piling sections give you a low fixed expense as an added competitive advantage when bidding on jobs. You can always count on reliable service! RENT: Pile Hammers and Extractors.
Write for New Piling Bulletin EE-2
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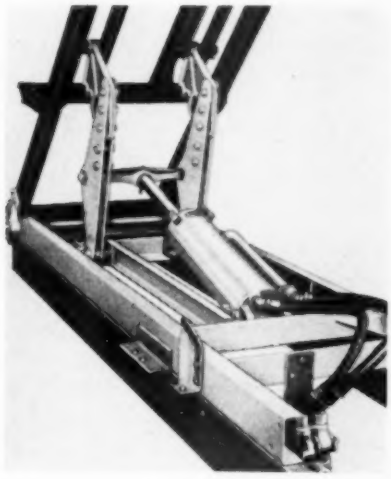
Equipment You Ought to Know About



Hydraulic Hoist

Manufacturer: Galion Allsteel Body Co., Galion, O.

Claims: The model 770 hydraulic hoist has been redesigned to make it suitable for installation in a wider range of motor trucks.

With a load capacity of from 10 to 13 tons, the hydraulic hoist is ideal for most medium-duty contractor operations. The unit weighs 950 pounds. It features an all-steel subframe, hefty cast steel rear hinges and a forged steel crosshead. Lift arms are made from heavy fabricated steel plate. Lift arms and cast steel lift links are both equipped with heavy-duty bronze bushings and grease fittings.

Model 770 has a dump angle of 50° with a mounting height of 145⅛ inches and is recommended for use on eight to 12 foot dump bodies.

Torque-Limiting Wrench

Manufacturer: Plomb Tool Co., Los Angeles, Calif.

Claims: The PROTO precision torque-limiting wrench is designed without the usual external indicating devices. It is suited for nut and bolt torquing by almost all types of industries and by all mechanics.

The new PROTO torque wrench differs from most conventional types in four basic respects. First, it is a torque-limiting device (releases automatically at proper setting), and not a torque-indicating device (requiring dials, pointers, scales, sound indicators, etc.). Second, it employs a fully enclosed precision spring under compression as the principal torque-controlling element. Third, it uses an accurate micrometer-type adjustment. Fourth, models, with a built-in reversible ratchet head do the work of both a ratchet and torque wrench.

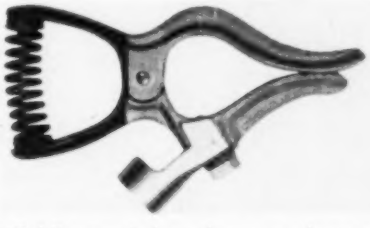
Desired torque is set by turning the handle, just like a micrometer. When the right torque is reached by pulling the handle, the wrench releases automatically and signals the operator with a positive reflex action. Upon removal of hand pressure, the torquer resets automatically for the next operation.

Six models are currently available —three with ratchet head and three with plain head.

Ground Clamp

Manufacturer: Tweco Products Co., Box 666, Wichita, Kan.

Claims: The new Model GC-200

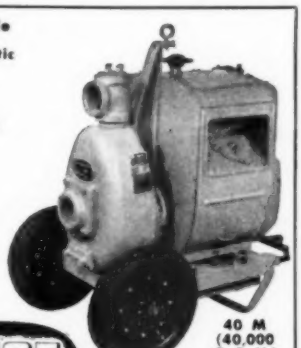


"Cub" ground clamp has a rated capacity of 200 amperes.

The Cub utilizes a protruding upper

Continued on page 70

Available with Pneumatic Tires Tires, Steel Wheels or Skids



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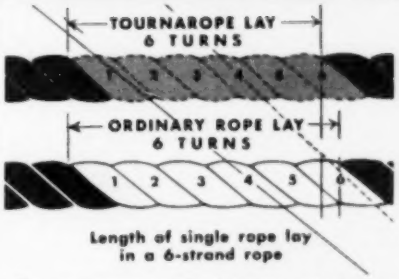
More steel per foot, 7% shorter lay give longer rope life



Length of single rope lay in a 6-strand rope

The numerous small sheaves and drums necessary on construction equipment put strains on cables that ordinary wire rope cannot stand. That's why LeTourneau designed a special rope to lick the problems of heavy abrasive service and severe shock loads.

Pre-formed Tournarope averages 7% shorter lay than ordinary rope. Tight-woven strands and wires have a flatter twist and a harder structure. This means greater elasticity and greater flexibility. As a result, Tournarope:

1. **Stands up under severe flexing**
2. **Gives long life service over small sheaves**
3. **Spools well on small drums**
4. **Resists kinking, shocks, and fatigue**

There's another reason why Tournarope lasts longer. With short-lay Tournarope, you get more steel per foot. In 1000' of ½" Tournarope, there is up to 35 lbs. more steel than in ordinary rope.

Try Tournarope the next time you replace wire rope on any of your equipment. See what advantages the 7% shorter lay and specialized construction can mean to you in longer life, fewer replacement delays, and lower annual rope costs. Send coupon for quotation.

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Tournarope Division
PEORIA, ILLINOIS

Please quote on ..... feet of ..... inch diameter Tournarope ..... lay, ... construction ..... type, ... core, for ..... service on ..... to:

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Company .....
Address .....
City, State .....
Signed .....
Date .....

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NOT in the *Contract*

An official was inspecting a newly completed portion of highway. He grumbled at everything. The crown was not high enough, the shoulder was too steep. The ditches not deep enough, and so on.

The foreman bore it all patiently. Then he straightened up to his full height and looking the inspector in the eye, he asked, "How is she for length?"

A young lad who had been exposed to over-stimulating radio and TV programs throughout his short life heard some other children speak of their grandmothers and, never having seen his, he asked his mother where she was.

"She's dead," the child's mother said.

"Who shot her?" asked the little boy.

"Do you believe in free love?"
"Have I ever sent you a bill?"

"Here's a special message from the admiral, captain," reported the sailor. "It's to you personally, sir."

"Read it to me," snapped the captain.

The sailor read: "Of all the blundering, stupid, idiotic morons you take the cake!"

"Have that decoded at once!" ordered the captain.

The efficiency expert will tell you that if a farmer's boy can pick six quarts of berries in an hour, and a girl five quarts, the two of them will pick 11 quarts. But any farmer will tell you the two of them together won't pick any.

A Cleveland contractor noticed one morning that his secretary had suddenly falsi-fied her very average contour.

"How do you like that?" he asked nudging his partner.

"Like it!" said the second man. "I think it's a sham dame!"

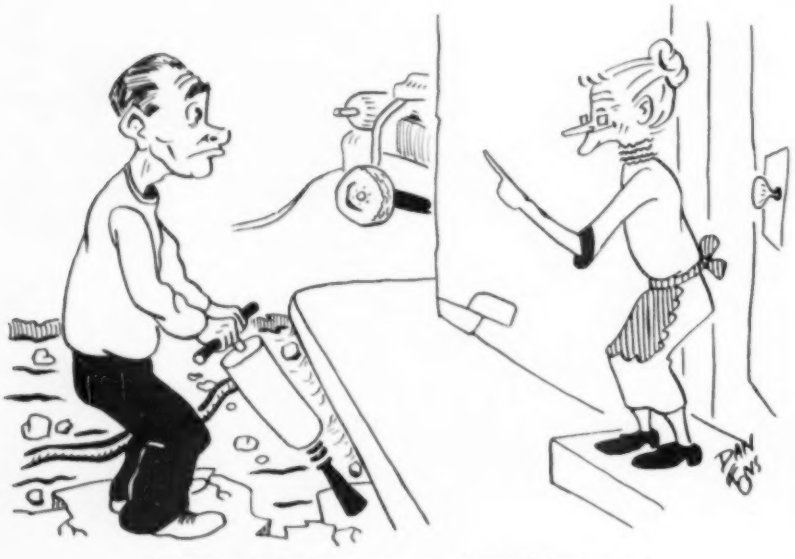
"Would you like to see a model home?"

"Glad to. What time does she quit work?"

The dog was so obviously enjoying the movie that the theater manager, who had been hastily summoned by the usher, couldn't bring himself to order its master to take it outside.

As the dog and its master sauntered through the lobby after the show, the manager approached the man and expressed his astonishment at seeing the dog paying such close attention to the film.

"Yes, I was surprised myself," nodded the man. "He didn't care much for the book, you know."



"You'll have to stop now, young man. My cake's in the oven."

A Communist agitator rode into a city park, and after leaning his bicycle against the railing, mounted a soap box and addressed the crowd.

"If your family is hungry," he shouted, "raid a shop and take food for them, and don't care what anybody says. If your wife hasn't a coat, take the best fur coat you can see, and ignore the consequences."

After several more minutes in this type of talk, he dismounted from the soap box, and his next words were: "Where's the scoundrel who took my bicycle?"

Mrs. Simpkins: "Listen to me, I'm sick and tired of hearing you talk about 'my car' and 'my furniture' and 'my son.' It's getting on my nerves and you're going to learn to say 'our.' What are you looking for now in that closet?"

Mr. Simpkins: "Our pants."

You know what the once over is?
That's this!
when like
you girl
look at a pretty

Dressing for a party, a contractor's wife chose an evening gown with a very brief top.

After observing the low-cut neckline, her five-year-old son suggested tactfully: "Mummy, don't you think you ought to wear a T-shirt under your dress?"

Two drunks were driving furiously, late at night, along a road that ran side by side with a main line railroad track. Suddenly a speeding train, dark except for the engine, flashed past them going in the opposite direction.

"Say," said one of the men in the car, "did you see that little town we just went through?"

"Yes," replied his companion.

"You know something? I think that first house was on fire."

Wife: (in the midst of an argument with her hubby): "There's no use discussing things with you. We can't agree on a single thing!"

Hubby: "You're wrong. For instance, if we walked into a room with two beds in it—a woman in one and a man in the other—in which would you choose to sleep?"

Wife: "With the lady, of course!"

Hubby: "That proves my point. We agree. So would I!"

For TOUGH jobs with years of work ahead...

MARION 111-M Ward-Leonard Electric shovel owned by the Hydro-Electric Power Commission of Ontario, making a cut for an open canal and recovering aggregate for concrete work.

MARION 111-M
Ward-Leonard Electric

Rock and ore have a way of making things rough for an ordinary shovel.

The machine may win, in the first few months, over the stubborn resistance of shot rock. But it still faces the test of time, for rock and ore "wear down" an ordinary shovel and break its spirit.

It's on the tough jobs, with years of work ahead, that the MARION 111-M Ward-Leonard Electric shovel has a chance to prove its real worth. Today this MARION is winning the battle of the rock pile and the ore pit on many a front.

Its victories mean greater production, lower operating cost, less maintenance expense and fewer work stoppages. Its powerful electric muscles and the shock-tested members of its frames and machinery assemblies are making owners say, "This is it!"

It doesn't cost anything to find out what the 111-M Ward-Leonard Electric can do for you. Your nearest MARION office will be glad to give you the facts.

MARION POWER SHOVEL CO.
MARION, OHIO, U. S. A.

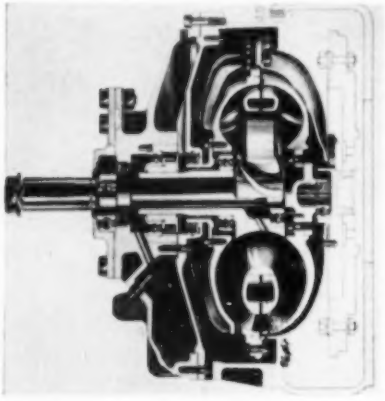
from ¾ cu. yd. to 45 cu. yds.

OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES

New Equipment

Continued from page 67

lip for extra leverage in applying the clamp. It has wide jaws for added conductivity; the serrated lower jaw removes rust and scale as the clamp is applied and assures a clean connection. A strong, fully insulated spring and simple bolt and clamp connection are additional features.



Converter Coupling

Manufacturer: Fuller Manufacturing Co., Kalamazoo, Mich.

Claims: A new torque coupling for construction and mining equipment has been designed.

During starting and pulling under load, the new Fuller converter coupling automatically provides up to 2 to 1 hydraulic torque multiplication, eliminating shock load on all component units of the drive line. During converter operation, the reaction member is locked to the housing through an overrunning clutch—changing the oil direction so that the thrust reaction is taken by the housing.

As the vehicle's load demand tapers off during normal running conditions, the new Fuller Drive automatically changes to 1 to 1 coupling operation. This has been accomplished by designing the vanes and housing so that the reactor—mounted on an overrunning clutch—is released and freed to rotate with impeller and runner when torque requirement slackens.

Model 12-A provides a flanged output and an S.A.E. No. 3 flywheel housing at the rear, permitting the installation of a second flywheel automotive clutch with the transmission. Model 12-S has a splined output shaft for straight line drives with a universal joint.

The new Fuller torque converter coupling is designed to handle engines developing from 180 to 225-ft. lbs. of torque at 2,000 to 2,200 rpm or higher.

Automotive Concentrate

Manufacturer: Stewart-Warner Corp., 1826 Diversey Pkwy., Chicago 14, Ill.

Claims: Alemite CD-2 concentrate is a new automotive chemical product. Its action in an engine assures free-acting valve stems, hydraulic valve-lifters, piston rings, etc., in addition to thoroughly cleaning the engine of destructive foreign matter and by-products of combustion.

It has ten years of research and millions of miles of road-testing behind it. The concentrate has been sold in limited quantities by the Alemite national distributing organization for more than a year.

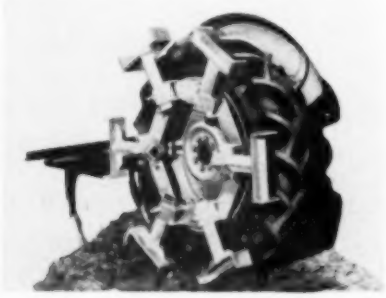
Retractable Lugs

Manufacturer: COMCO, Box 983, Kilgore, Tex.

Claims: Vise-Grip retractable lugs make it possible for a rubber tired tractor to efficiently operate in mud, snow, ice, rock, sand, hills, and on hard ground.

A framework supporting the lugs bolts on the outside of the tractor wheel, using the same bolts for the tractor wheel and tire. Under adverse ground conditions, these lugs are extended beyond the width of the tractor tire. When ground conditions improve, or when necessary to travel on a hard-surfaced road, the lugs can be retracted.

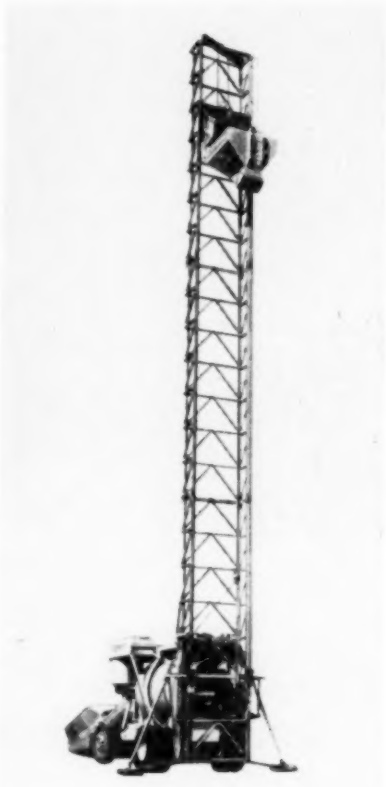
Vise-Grip lugs are available for all standard tractor tires. Using a wrench it only requires four minutes to extend or retract the lugs. In an actual field test, the drawbar pull on a small farm tractor was increased from 2000 lbs. to 5200 lbs. in dry sandy loam.



Concrete Pouring Tower

Manufacturer: Koehring Co., Milwaukee 16, Wis.

Claims: Fitted with the newly designed portable tower attachment, the mobile rubber-tired Twinbatch can mix and discharge concrete up to a height of 48½ feet above ground level. This is done without aid of additional elevating equipment.



Available in 40 and 60-ft. lengths, the 16-E tower is raised and lowered in a few minutes by hydraulic rams. Outriggers stabilize the tower for maximum rigidity.

This latest improvement adds to the 16-E Twinbatch's versatility as a general purpose mixer; it can mix and distribute up to 50 cubic yards of concrete per hour. In addition, the 16-E

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PALISADES DAM — Two Model 4500's owned by J. A. Jones and C. H. Tomkins each handling over 10,000 yds. in 20 hr. shifts.

CHIEF JOSEPH DAM — Model 4500 Dragline owned by Columbia River Constructors, on a really tough excavation job at this huge dam near Bridgeport, Wash.

FOLSOM DAM — Model 4500 Dragline owned by Merritt-Chapman & Scott-Savin, loading trucks. Another Manitowoc 3900 also on job.

There's a big switch to Manitowoc all over the country — big jobs, small jobs — big contractors, small contractors — are all replacing with mighty Manitowocs.

They've found what they're looking for — the power and speed for big yardage — the extra heavy, rugged construction for long life — the simplicity of design for lower operating costs — the quick convertability for greater versatility — the ease of operation for operator comfort and productivity.

No other excavator can match a Manitowoc in performance — because no other excavator has the built-in features and extra values found in a Manitowoc.

May we prove it to you? Send for catalogs on the mighty Manitowocs, now. Manitowoc Engineering Corp., Manitowoc, Wisconsin.

MANITOWOC

SHOVELS 1-5 YD. Speed Crane CRANES 18-100 TON

tower arrangement has an advantage over fixed towers in that it can be moved frequently on the same job location, thereby reducing the requirements for hauling concrete.

The complete attachment, consisting of tower, 40 cubic foot hopper, and 21½ cubic foot concrete bucket, is optional and interchangeable with the 16-E's power controlled elevating boom.

In operation, the hopper remains at a stationary level. The hoist bucket travels up and down, delivering mixed concrete from the mixing drum and discharging automatically into the hopper.

The bucket is firmly engaged against the hopper to prevent spillage. It is raised and lowered with the same controls used on the 16-E's elevating boom. The clam type discharge gate on the tower is manually operated and extends 4½ feet away from the tower. The hopper may be spotted at any 6-in. increment along the face of the tower and can be positioned in any of three directions.

Divided-Deck Trailer

Manufacturer: Rogers Bros. Corp., 136 Orchard St., Albion, Pa.

Claims: One of the features of the new trailer is its carefully balanced

divided deck which can be tipped or returned to the traveling position by the weight of one man.

The trailer's longer deck can carry heavier loads of greater area. Better load distribution is promised, with a larger percentage of it on the tractor assuring greater stability.

A double-acting hydraulic ram checks and cushions the upward and downward movement of the deck.

Truck Steering

Manufacturer: Autocar Co., 945 Wood Ave., Ardmore, Pa.

Claims: The manufacturer of heavy-duty trucks recently announced that virtual passenger car steering has been developed for its new V-8 truck chassis.

The new steering results in safer, more comfortable driving. It is actually the by-product of changes in the hook-up necessitated by the V-8 power plant in the Autocar chassis.

Lengthening the front spring from 44 to 50 inches has resulted in softer spring strength. Spring anchor is mounted in front of axle.

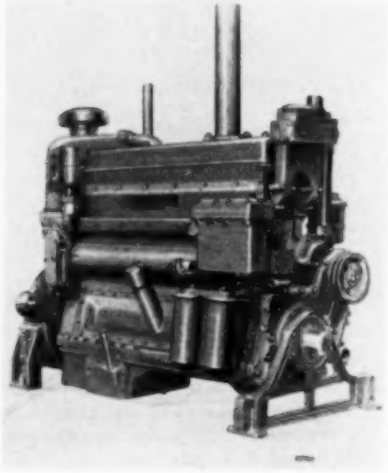
A cross member spanning the frame under the bell housing of the transmission has been included to present added torsional rigidity to the frame rails. Reducing king pin angle from 8° to 5½° diminishes physical effort in turning wheels.

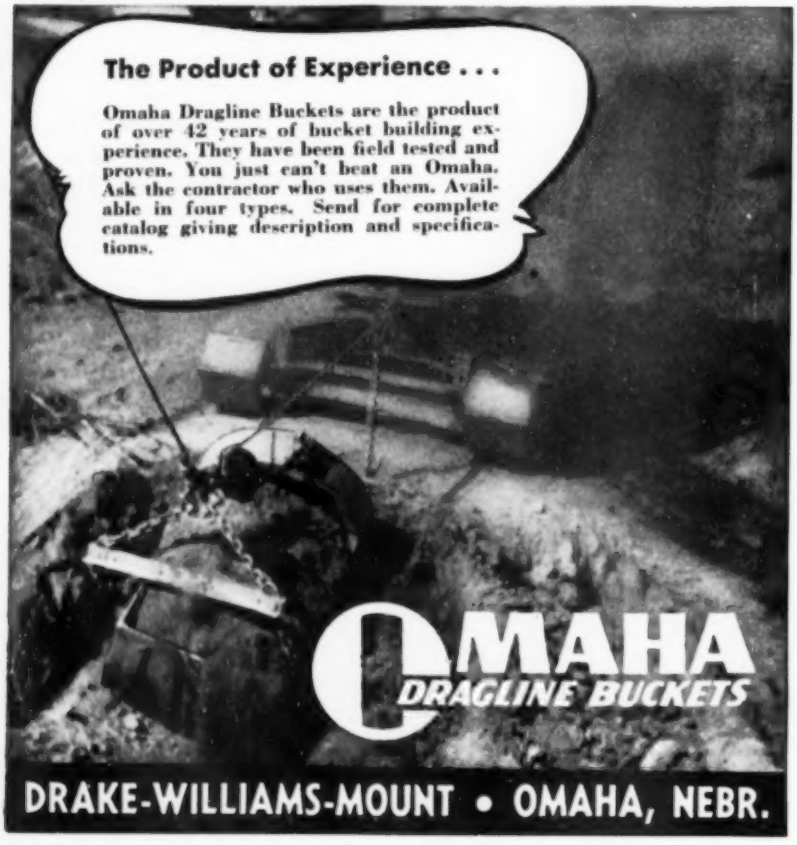
The manufacturer has adjusted the length of the Pitman arm and the steering spindle arm and ball so that the brake reaction with the softer spring does not produce steering shock.

Diesel Engine

Manufacturer: Caterpillar Tractor Co., Peoria 8, Ill.

Claims: A new high-speed diesel en-

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DRAGLINE BUCKETS
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gine, designated the Cat 236, is offered in industrial, electric set and marine arrangements.

1. D326 Industrial Engine—intermittent output rating of 170 hp at 2,000 rpm; weight, approximately 3,650 lbs.
2. D326 Electric Set — 12-hour rated output of 80 kw; set available as a 50-cycle unit, with a 60-cycle unit anticipated at a future date.
3. D326 Marine Engine — on 24-hour, continuous duty, produces 118 hp at 1,600 rpm.

The basic D326 is six-cylinder and has a 5⅛-in. bore and 6-in. stroke. Its announcement follows last year's introduction of the Cat D337, similar in many ways but built for a higher horsepower output.

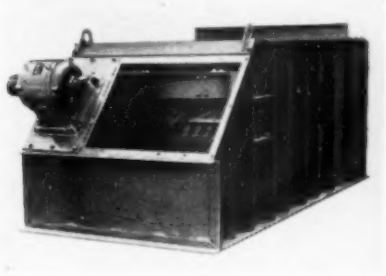
With the engines came new developments in the Caterpillar fuel injection system of individual pumps and valves. The pumps are mounted directly adjacent to the cylinders they serve, and the fuel lines made short and identical. These pumps, as well as the intake and exhaust valves, are actuated by a single camshaft.

Both engines include special heat resisting metal inserts in the tops of pistons and the valve seats. Main and connecting rod bearings are precision-type, of steel-backed aluminum with high fatigue resistance. Piston cooling is by means of oil jets from under-mounted nozzles.

Rod Grizzly

Manufacturer: Nordberg Manufacturing Co., Milwaukee 1, Wis.

Claims: Production of the Symons Vibrating Rod Grizzly, a new high



capacity unit designed to scalp in excess of 400 tons of material an hour was recently announced.

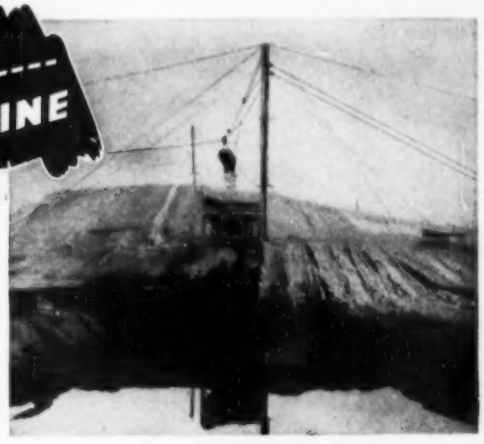
The new grizzly, designated type K-RG, is engineered and built for heavy-duty service in dry, wet, sticky or gummy rock and ore. Extensive tests have substantiated the high capacity of the unit and several are now in successful operation in the field.

Applicable for separations from ½ in. upwards to about four inches, the Symons is ideally suited for service following most sizes of primary crushers and for use ahead of secondary crushers. It serves primarily as a single cut scalping unit; however, it can accomplish a limited number of separations. A large feed intake opening and ample clearance between the power unit and the screen deck permits an unobstructed flow of material up to 12 in. feed size.

The Symons Rod Grizzly is built with a 50-in. wide by 8-ft. long screening surface using ½-in., ⅝-in., or ¾-in. spring steel rods in three bays. The rods, designed for long life, are held in place with a built-in screw clamping device. The rods are easily replaced through inspection and adjustment ports.

The vibrator unit or power mechanism is basically the same type that has been used successfully on other Symons vibrating screens. It is located at the discharge end of the grizzly. Motor and drive for the vibrator are installed outside the housing away from the dust. Drive is through a flexible coupling and the pulley runs true eliminating undue wear on the belts. Positive vibration is achieved by an unbalanced weight. This assures an effective, vigorous vibration which will not dampen out.

ONE MAN ----- ONE MACHINE



¾ cu. yd. Sauerman Slackline Cableway pictured at right has solved permanently the problem of cleaning out two settling ponds at a coal washery. About 5,000 tons of slurry must be removed two or three times a year. A mast is set up for the cableway at the edge of each pond. When the cableway finishes its job at one pond, the guide blocks and cables are moved over to the other mast. The cableway hoist remains at a fixed location between the ponds.

SAUERMAN method . . .

Sauerman Slackline Cableway

Sauerman Scraper Excavator

Sauerman Scraper Stockpiler

Simplifies Material Handling!

Wherever there are problems of long range digging or stockpiling, Sauerman scrapers and Cableways constantly prove their ability to move large yardages at low cost.

A Sauerman machine reaches across a river, bog or pond, down into a pit, up to the top of a hill or across a wide stockpile — moves material from any point within its radius, and dumps automatically wherever required. One-man control, fast action. Maintenance is easy; a few expendable parts take all the wear.

Whether your project is large or small, there is a size and type of Sauerman machine suited to your requirements — a machine that will give you years of steady service at minimum expense, no matter how tough the work it has to do.

Write us about your interests and we will send illustrated catalog by return mail.

Rope Haulage Equipment Specialists Since 1909

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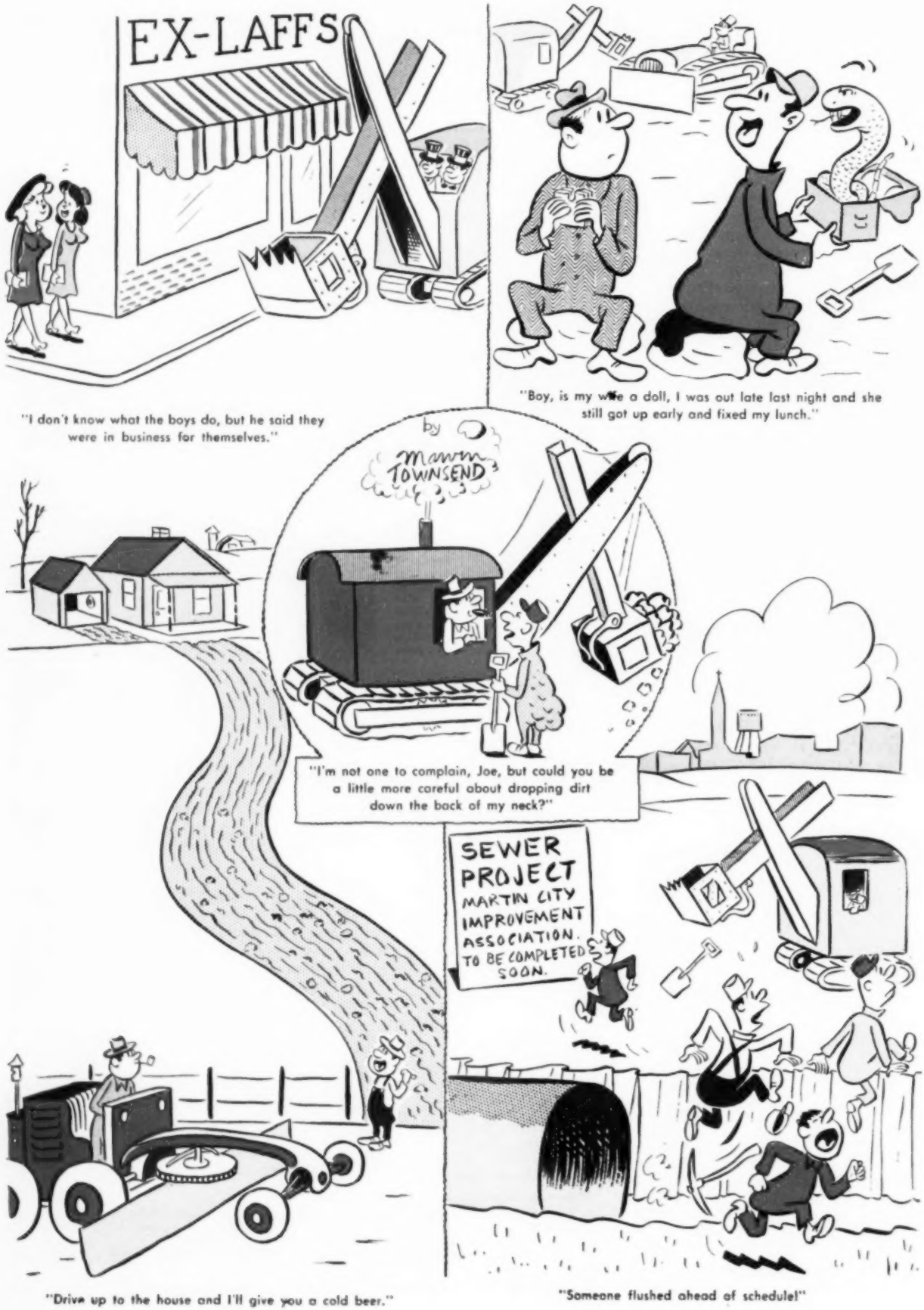
EX-LAFFS
"I don't know what the boys do, but he said they were in business for themselves."
"Boy, is my wife a doll, I was out late last night and she still got up early and fixed my lunch."
by
Mawm
TOWNSEND
"I'm not one to complain, Joe, but could you be a little more careful about dropping dirt down the back of my neck?"
SEWER PROJECT
MARTIN CITY IMPROVEMENT ASSOCIATION.
TO BE COMPLETED SOON.
"Drive up to the house and I'll give you a cold beer."
"Someone flushed ahead of schedule!"

Everything you want in a road-builder

On the 35-mile access road to Dugway Proving Ground, in Utah, Olof Nelson Construction Co. used several kinds of "Caterpillar" equipment. But the machine that did much of the finishing work and helped complete the contract on schedule was a "Caterpillar" No. 112 Motor Grader.

Here are some of the features that make this unit an all-round road-building favorite:

1. *Every inch of it is "Caterpillar"-designed and built.*
2. *Weight, horsepower and speed are perfectly balanced for top performance.*
3. *Tandem drive assures constant power delivery and traction.*
4. *Mechanical controls provide instant, positive blade action in all conditions.*
5. *Constant mesh transmission makes shifting easy, fast and smooth.*
6. *Operator has a full view of the road, the blade and the job.*
7. *A complete range of blade positions gives the machine maximum versatility.*

The "Cat" No. 112 is built to handle every type of grader job from ditching, bank shaping and scarifying to oil mixing, fine finishing and maintenance. Get the full facts on this money-saving unit from your "Caterpillar" Dealer. He stands back of every machine he sells with genuine "Caterpillar" parts and reliable service.

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New trade literature

Subject: **Diesel Engine**

Content: A new bulletin on the TS Diesel engine has been published. The 12-page, three-color catalog incorporates sectional wash drawings, installation views, and diagrams to show why the TS Diesel is called a smaller, lighter, but fully heavy-duty engine. Specifications, weights, performance curves, and dimension tables are included. The TS is a four-cycle, single acting, solid injection engine of the fully enclosed type. It is equipped with a complete pressure lubrication system, wet liners, and many other features common to larger engines. The TS has a bore of seven inches and a stroke of 8½ inches. It is built in three models: A six cylinder naturally aspirated unit rated 200 hp at 900 rpm or 220 hp at 1000 rpm; a six cylinder supercharged engine rated 260 hp at 900 rpm or 285 hp at 1000 rpm; and an eight cylinder supercharged model rated 345 hp at 900 rpm or 380 hp at 1000 rpm.

Where to get: Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y. (Form 10027).

Subject: **Guardrail**

Content: An attractive, illustrated folder on *Flex-Beam Guardrail for Highways and Byways* has just been published. The theme of the piece is "safety on the nation's highways," and it describes how flexible beam strength of the product assures safety. Installation is simple, maintenance is low, and the guardrail has been proved in service. The folder contains a variety of pictures of different types of installation.

Where to get: Armco Drainage & Metal Products, Inc., Middletown, O.

Subject: **Soil Test Studies**

Content: Two symposiums—*Consolidation Testing of Soils*, and *Surface and Subsurface Reconnaissance* — have been issued by the American Society for Testing Materials. The papers and discussions in both symposiums were presented at the Society's 54th annual meeting in Atlantic City, N. J., June, 1951. The ASTM Symposium on *Consolidation Testing of Soils* illustrates the wide range, variety and character of consolidation problems encountered in soil and foundation work. It also presents the different approaches and consolidation testing techniques used in analyzing consolidation problems while at the same time advancing an understanding of the nature of consolidation phenomena. The 116 page paper-bound book is extensively illustrated with photographs, maps and charts. The Symposium on *Surface* and *Subsurface Reconnaissance* presents 15 technical papers and two panel discussions. The papers relate to the geologic interpretation of land forms and underlying deposits, the pedologic interpretations, airphoto interpretation and geophysical methods. Subjects covered in this symposium include the following: Interpreting geologic maps; reconnaissance in the plains area; foundation exploration in the Arctic, preparing county soil maps; the engineer and pedology; aerial photographs and preliminary soil surveys; soil map for New Jersey; a critical panel review of air photo analysis; earth resistivity tests; electrical resistivity method; measurements of weathered mantle rock; earth resistivity method in subsurface explorations; siesmic methods and foundation exploration; siesmology applied to shallow zone research; resistivity reconnaissance and panel discussion on geophysical methods. A valuable part of the publication is a series of bibliographies, one of which includes 127 references.

Where to get: American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. (*Consolidation Testing of Soils* — $1.75; *Surface and Subsurface Reconnaissance* — $3.00)

Subject: **Dale Carnegie: "Courtesy"**

Content: The Bureau of Business Practice, a division of The National Foremen's institute, has just published an illustrated booklet on courtesy for the worker in American Industry. The author is Dale Carnegie, well known for *How to Win Friends and Influence People*, *How to Stop Worrying and Start Living*, and numerous self-improvement courses. Publication of this booklet, titled *Thank You* marks the first time Carnegie has adapted his techniques of self-improvement expressly for the worker in industry. In the twenty-four page booklet, designed in size for easy distribution to employees, Carnegie outlines eight reasons for courtesy in the employee's business and personal life and why courtesy is important in creating good will for his company. Twelve rules are offered for developing better habits of courtesy.

Where to get: The National Foremen's Institute, 100 Garfield Ave., New London, Conn. (20c)

Subject: **Wire Rope Use and Care**

Content: The new pocket-size booklet on the *Use and Care of Wire Rope* is an up-to-date guide to improved wire rope service. The booklet contains 72 pages of practical information on proper methods of handling, reeving, breaking in, splicing, cutting, lubricating, and specifying wire rope. Included are more than 50 illustrations and 32 diagrams and charts to demonstrate and explain suggestions and recommendations for proper wire rope use and care.

Where to get: Dept. C-51, A. Leschen & Sons Rope Co., 5909 Kennerly Ave., St. Louis 12, Mo.

Subject: **Hose**

Content: A new catalog on water suction hose is available on request. The catalog describes four types of hose which cover all suction hose service. A table lists types of fittings and their recommended uses. The catalog also lists specifications, describes materials and methods used in construction of the hose and recommended uses. The publication is colorfully illustrated. . . . A new catalog on air hose has also been published by the manufacturer. The catalog describes five grades of air hose with tough, oilproof covers to prevent peeling.

Where to get: B. F. Goodrich Co., Akron, O.

Subject: **Dump Bodies, Hoists**

Content: A new catalog covers dump bodies, hydraulic hoists, and end-loaders. A catalog feature is the handy reference table which permits the user to easily select the exact hoist and body best suited to his needs. Action photographs, engineering diagrams, complete technical data information, and mechanical specifications are other catalog features. Full data is included on a vast collection of equipment ranging from light duty pick-up truck units to huge twin telescopic, three stage tandem axle trailer dumps.

Where to get: Galion Allsteel Body Co., Galion, O. (Form L-6512)

BUCYRUS ERIE

6-YARD 150-B

To Heavy Duty Excavati

ADDED to the time-proved superiorities of design and construction which have made Bucyrus-Erie quarry and mining shovels traditionally "years ahead" are important features new to an excavator of this size, yet *thoroughly proved in the field*. Among these 150-B features are:

Exclusive Two-Section Boom with tubular dipper handle free to rotate in saddle block. Used with outstanding success on Bucyrus-Erie's large stripping shovels for many years, this design speeds the working cycle and permits increasing the payload because it reduces front end weight materially — yet provides enormous strength. Upper boom section carries only load resulting from pull of ropes, s trussed lower section transmits directly t revolving frame the vibrations, torsional shock loads set up in digging. Rope crow quiet, positive, with crowd machinery loc on the deck.

Powerful New Main Machinery designed double twin hoist, smoothly delivers p where you want it, when you want it. machinery pulls dipper straight through banks with steady positive action. Fast s swing, with quick acceleration and de tion, shaves seconds off every cycle.

Larger Stronger Mounting has new p machinery arrangement, which provi engagement of the propel for fast Cored box-section tread links ha wearing paths for rollers and driv Cat belts have high wear resi adjustment for long periods.

The 150-B has full Ward Le motor control, is fully co service, features numer vances that make it tr

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Notes from the manufacturers

Air Reduction Sales Co., New York 17, N. Y., announced the appointment of A. S. Blodget, Jr. as manager of its Pittsburgh district. E. S. Twining, Jr., formerly assistant sales manager of the company's Philadelphia district, succeeds Blodget as manager of the Boston district. The changes were made following the death of S. D. Edsall, former manager of the Pittsburgh district. Air Reduction Sales Co., a division of Air Reduction Co., Inc., is a major producer of welding and cutting equipment and industrial gases.

Bucyrus-Erie Co., South Milwaukee, Wis., has appointed E. C. Ray Machinery Co., 2001 E. Texas Ave., Shreveport, La., distributor for its ⅜ to 4-yd. gasoline, Diesel, and single motor electric convertible excavators, dragline buckets, Hydrocranes, and Hydrohoes. The firm will serve excavator users in that part of Louisiana north of and including the parishes of Vernon, Rapides, Avoyelles, and Concordia.

Caterpillar Tractor Co., Peoria 8, Ill., has promoted R. J. Pitzen to assistant manager of the sales training division. Pitzen joined Caterpillar's college graduate training program six years ago shortly after his release from the army where he served three years in the Corps of Engineers. He attained the rank of captain. Since joining the company and completing the year's training, Pitzen has served as a district representative in the central division, as a military consultant in the governmental division, and as head of the Caterpillar armed forces training program in the field. Pitzen is a graduate of the University of Wisconsin where he received his B. S. degree in mechanical engineering.

Detroit Diesel Engine Division of General Motors Corp., Detroit 28, Mich., announces additions to its field organization. C. J. Davy, who has been with Detroit Diesel's petroleum sales department since 1945, has been appointed sales representative of one of the new zones which includes Alabama, Georgia, and Florida. R. J. Hines, formerly associated with a Detroit Diesel distributor, has been assigned in a similar capacity to eastern New York, eastern Pennsylvania, New Jersey, Maryland, and Delaware. J. R. Sayward, R. T. Hair, C. J. Saurer, and H. S. Pillsbury, former instructors in Detroit Diesel's mobile training schools, have been added to the field service staff. The new zones were formed by dividing two previously established territories into four smaller units.

Goodyear Tire & Rubber Co., Akron 16, O. has announced the appointment of John J. McPeak as rim sales representative. McPeak in his new duties will headquarter in Akron and will report to George Effland, manager of trade sales in the rim division. McPeak joins Goodyear after a 24-year period with the Motor Wheel Corp. of Lansing, Mich. During the past 12 years he was manager of the merchandise sales division for that concern. Prior to that he was assistant manager of merchandise sales. He was also employed by the former Durant Motor Car Co. for a number of years.

Harnischfeger Corp., Milwaukee, Wis., announces the promotion of George A. Schmus, to manager of the parts and service department. Schmus, who will celebrate his 25th anniversary with Harnischfeger next year, assumed his new duties after serving as traffic manager since 1937. Prior to that time, he gained wide experience in the company's purchasing, credit, and stores control departments. Schmus' duties will be to supervise and correlate activities of the parts and service division.

R. G. LeTourneau, Inc., Peoria, Ill., announces the appointment of A. M. Krider as central sales manager, succeeding W. V. Richards who has held that position since 1948. Krider, who succeeds Richards as sales manager for the central U. S. and central Canada, has been with LeTourneau for 10 years and has served in the company's training and sales departments. He is assuming the managership of the central area after having been district sales representative for central Canada and north central U. S. Richards, who has been with the LeTourneau Co. since 1936, is joining LeTourneau Distributor Great Plains Equipment Co. of Omaha, Neb., as

ERIE *Standard* 2-LINE REHANDLER

THIS compact Lever Arm Rehandler Bucket of normal proportions has ample closing power to fill to capacity in compact materials, and is so designed that the reeving can be adjusted to obtain maximum speed with capacity grabs in loose materials. We have reduced the "height open dimension" thus requiring minimum headroom, enabling you to pile higher and to discharge into higher hoppers. Lighter weight alloy construction provides more pay load (scoop contents) less bucket dead weight. To see this bucket in all detail write for bulletin 403.

● *Write for Booklet 403*

ERIE BUCKETS • *A Complete Line*

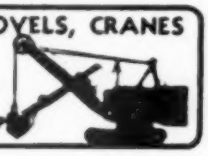
Erie Steel Construction Co., 266 Geist Rd., Erie, Pa.

BUCKETS • AGGREMETERS • PORTABLE CONCRETE PLANTS

TO ADVERTISE: All advertising in this section is payable in advance. Rate: $1.00 per line, or $12.00 per inch of 12 lines. Minimum charge $4.00. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date—15th of preceding month. Example: January closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

LARGE SHOVELS, CRANES AND DRAGLINES
1¼ YDS AND UP



Bucyrus-Erie 120-B electric shovel. Shipped in January, 1947, but used approximately 4 years. In good operating condition. Located northern Minnesota. Box 3507

Bucyrus-Erie 120-B dragline excavator, full electric Ward Leonard control. Serial No. 23065 with 100-ft. boom special cast manganese steel. 48-in. wide track pads including 4¼-yd. heavy duty Esco mining bucket serial no. 4130 or a special 6-yd. Esco bucket serial no. 1367 including 940-ft. rubber covered 2360 volt power cable. Located in California.

Thurman and Wright
625 Market St. San Francisco, Calif.
Phone EXbrook 2-8260

Page 625 diesel walking dragline. 150 ft. boom, 9 cu. yd. bucket, 4 years old. Good operating condition. Price $150,000. Loaded on cars. Location Middle East. Box 3486

Used 5W Diesel walking dragline, 135 ft. boom, 4 yd. bucket. Good working condition. Location central Florida. Box 3501

2—9-W Bucyrus Monighan Draglines.
1—5-W Bucyrus Monighan Dragline.
1—200-W Bucyrus Monighan Dragline.
1—120-B Bucyrus Elect. Dragline & Shovel.
1—44-B Bucyrus Dragline & Shovel.
1—9-W in Ohio—others in Wash. & Idaho.

J. A. TERTELING & SONS, INC.
Box 1428
Boise, Ida.
Ph. 4-3576

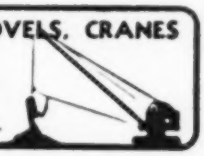
Page 625 Electric Walking Dragline, 150-ft. boom, 9-cu. yd. bucket. Excellent operating condition. Price $150,000 f.o.b. cars. Located Middle East. Available approximately May 1, 1953. Box 3504

Bucyrus-Erie 320-B electric shovel, serial No. 4957, mounted on AMSCO shovel crawlers, operating on 4100 volts with Ward-Leonard control; equipped with 75 ft. boom, 54 ft. dipper handle and 12 cu. yd. bucket. Machine can be inspected and is available immediately. Good condition. Write, wire or phone:

Pioneer Mining Corporation
Appleton City, Missouri

5W electric Ward-Leonard dragline, 105 ft. boom, 4½ yd. dragline 60 cycle, 2300 volts. Good working condition. Single owner. Price $56,000. "As is, where is," central South. Box 3498

SMALL SHOVELS, CRANES AND DRAGLINES
UP TO 1¼ YDS.



P&H Model 855-B No. 12661 2-yd. comb. diesel shovel and dragline with 50 ft. dragline boom, 2-yd. dragline bucket and powered by a General Motors Model 671 diesel engine. Also equipped with 4-cylinder light plant. Box 3496

37-B crane with 45 ft. boom, powered by 60 hp electric motor, 440 volt, 60 cycle, 3 phase, alternating current, complete with 200 ft. of electric drill cable. Price $11,500.

Stuart M. Christhilf & Co., Inc.
134-136 West Mt. Royal Ave.
Baltimore 1, Maryland
Phone Lexington 4313

Model 10-B No. 18121 Comb. ⅜ cu. yd. shovel and dragshovel, gasoline driven. Box 3502

Northwest model 25; 6; 80D; 95. Manitowoc 6500; 4500 new — will rent. Bucyrus 54-B; Monighan 5W; 7W; 9W; 450.

A. W. Nevers Phone 32 Mt. Pleasant, Iowa

Koehring model 1005 Diesel shovel, 2½ cu. yd. dipper. Delivered new, 1949. Located south central Missouri. Immediate delivery. Box 3493

Bucyrus-Erie 44-B shovel with 24-ft. boom, 19-ft. handle, 2-cu. yd. dipper. Clamshell and lifting crane equipment including 100-ft. boom, Buda Diesel engine. Excellent condition. For further information contact:

D. D. Kennedy, Inc.
Mannheim Road (U.S. 45) at Madison Street
P. O. Box 278 Bellwood, Ill.
Phone Chicago—Estebrooke 8-5223

Used Bucyrus-Erie 10-B with Twin-crowd Shovel. Draghoe, Crane boom & Clam bucket. Machine No. 16093. Motor 6 cyl. Buda #238079. Machine completely rebuilt, used 500 hrs. since. Cat tracs used 200 hrs. since repinning. Machine always transported. Located North Central states. Box 3506

Late 1946 22-B Diesel dragline and clamshell with 45 ft. boom. Good condition and reasonably priced. Located Toledo, Ohio. Box 3499

SHOVELS—CRANES—DRAGLINES
38-B crane-dragline 1950 Model GMC diesel.
Model 6 Northwest crane-dragline 1950 Models.
Special 33-in. cats—Murphy diesel—two on hand.
38-B crane-drag-backhoe 1948 Model Cat diesel.
All located in Middle West.

Sales Reasonable Prices ... **Rentals**
J. C. French, 226 Berry Parkway, Park Ridge, Ill.
Tel. TAlcott 3-4927.

Practically new Bucyrus-Erie Model 22-B dragline, 50 foot boom, Caterpillar diesel engine, extra counterweight. Serial No. 96264. Presently working near Kansas City. Box 3494

P&H Model 255-A No. 13301 ¾ cubic yard diesel shovel with Model 387-C Harnischfeger diesel engine with electric starting and also equipped with 2-cylinder air-cooled light plant. Box 3497

Used Koehring Model 304 crane Serial No. C-3033 equipped with Buda Model 4K-28-10488-C gasoline engine Serial No. 254859. (Just reconditioned.) Mounted on 6 wheel Model K&C-2-8 (CT-15); oscillating front axle; bevel gear final drive (1.00 to 1.00); outriggers front and rear. 14.00 x 20 tires; 18" frame; 156" wheel base; Manufacturer Six Wheels, Inc., Los Angeles, Calif.
Used Bucyrus-Erie 10-B positive crowd shovel with 12' 6" boom, 11' handle ⅝ yd. cast front dipper fully enclosed steel cab, power boom hoist, caterpillar mounting 9' 1" long overall, 7' 8" wide overall, 14" wide treads; equipped with Buda 6 B-230 6 cylinder gasoline engine No. 306052 with electric starter. Machine No. 60096.
Used Universal ⅝ yd. capacity shovel ⅝ swing with gasoline engine. Very reasonable.

Stuart M. Christhilf & Co., Inc.
134-136 W. Mt. Royal Ave. Baltimore 1, Md.

51-B Diesel Dragline Excavator mounted on oversize Caterpillars. 70-ft. boom, light plant, and 54-B Diesel Dragline Excavator 80-ft. boom, oversize Caterpillars, electric light plant. Machines approximately 5 years old. Located in central South. For details and inspection reply to: Box 3505

MISCELLANEOUS EQUIPT.

ALLIS-CHALMERS Model HD-10W Tractor with Gar Wood cable dozecaster.
BAY CITY Model 20, ½ yd. shovel.
CATERPILLAR Model 12 motor grader with scarifier.
GAR WOOD 511 Cable Scraper.

E. F. CRAVEN COMPANY
P. O. Box 538 Greensboro, N. C.
Phone 3-5521

DREDGE FOR SALE

Modern 4½-ft. Bucyrus Diesel-Electric gold dredge now operating West Africa for sale early 1953. Possibilities conversion for gravel or channel deepening operations — Westrop, Brattleby, Lincoln, England.

CATERPILLAR D-8 Tractor, Serial No. 8R4454 with LaPlant-Choate angle dozer and Caterpillar double drum PCU, cab and lighting system. Price $4,000.
TWO 8-yd. Page special heavy duty dragline buckets. Good condition. Each $1500.
5-yd. ABC heavy duty dragline bucket, practically new. Complete with attachments. Price $1500. Location of equipment—Middle East. Box 3503

Continued on page 80

For Sale

Continued from page 79

Bucyrus-Erie 15-B Diesel Shovel, Crane Hoe Available—1949. $9800.
International TD-9 Loader—1950. $4800.
The J. & V. Rack Co.
North Bend Road Cincinnati 11, O.
Phone MO-2654

22-T Drill No. 40883—G.E. electric motor 440 or 220 volts, 3 phase, 60 cycle—in good operating condition.
Concrete Material Company
3000 W. Madison Sioux Falls, S. D.

WANTED

Wanted: Oversize caterpillar mounting for Bucyrus-Erie Model 44-B. Box 3480

HELP WANTED

EXPORT SERVICE ENGINEER required by manufacturer of tractor equipment. Should be well advised on crawler tractors and allied equipment. Must be willing to travel abroad. Box 3500

manager in charge of construction equipment sales. Taking over Krider's former position as sales representative in Canada and the U. S. is John Tuntas, who has had 12 years experience in the heavy construction field. Tuntas, who joined LeTourneau in 1949, has been in the parts coordinating department as a parts representative for the past year. John Sharda, who has been in the sales field for the past 10 years and most recently has been serving LeTourneau as a sales engineer in the Tournarope department, has been appointed district sales representative for Iowa, Illinois, and Indiana. He succeeds R. E. Dickerson, who held this position since 1948. Dickerson is joining LeTourneau Distributor Illinois Contractor's Equipment Co. as manager of the East Peoria, Ill., branch office.

Macwhyte Co., Kenosha, Wis., has appointed Thomas E. Burns a direct factory representative with headquarters in Houston, Tex. He will represent the wire rope manufacturer in its Houston territory and an area in Louisiana. Burns has been employed by Macwhyte Co. in various capacities for the past 12 years.

Marlow Pumps, Ridgewood, N. J., has put into operation a complete branch factory of 16,000 square feet in De Queen, Ark. The new plant, situated in southwestern Arkansas, permits fast delivery to all sections of the fast-growing southwestern United States. In addition to manufacturing and assembling pumps in De Queen for the irrigation, petroleum, and contracting industries, the new factory will also carry a complete inventory of all Marlow pumps as well as replacement parts. Sales and engineering staffs have been enlarged and will use the new plant as a regional headquarters. The De Queen, Ark., plant now brings the total of Marlow factories to four, with central headquarters remaining in Ridgewood, N. J. Two other factories are located in Coalville, England, and St. Cloud, France. The four factories serve more than 1000 dealers located throughout the 48 states and 46 foreign countries. Marlow Pumps has appointed W. M. Coopman district engineer. He will assist Marlow dealers in a newly created territory consisting of Southern California, Nevada, Utah, and Arizona. He will headquarter in Burbank, Calif. Coopman formerly had been division chief engineer for Republic Supply. Previous to that Coopman was vice-president and chief engineer for Cassman Manufacturing in Los Angeles.

Motorola, Chicago 51, Ill., announces the relocation of the company's communications and electronics division. Formerly operating in the main radio and television plant on Augusta Boulevard in Chicago, the 2-way radio division is now producing from new quarters, immediately adjacent, at 4501 W. Augusta Blvd. The new building, providing 200,000 square feet of plant and office space, is the former home of Tropic Aire and the Greyhound Bus Co. offices and factory. It has been renovated to consolidate exclusively all activities of the communications and electronics division—2-way mobile and fixed-station radio, microwave relay, and carrier-control engineering, production and sales. Approximately 1,000 persons are working in the plant. Purchase of the new property, for approximately $1¼ million, followed long consideration of a new building exclusively for the communications division.

Schield Bantam Co., Waverly, Ia., has appointed as a distributor Kessler-Simon Machinery Co., 1545 Exchange Ave., Oklahoma City, Okla., Schield Bantam Co. manufactures truck-mounted power cranes, draglines, shovels, back hoes, clamshells, pile drivers and magnet cranes. The appointment of Kessler-Simon will enable construction equipment users, large and small contractors, pit and quarry operators, utility and industrial companies, in western Oklahoma to receive helpful field engineering service on the proper selection and application of truck-mounted Bantam cranes and shovels. Kessler-Simon will also offer a service of job estimating and planning with Schield Bantam equipment methods. Kessler-Simon Machinery Co. represents R. G. LeTourneau, Inc., LeRoi Equipment Co., Wayne Cranes, Barnes Manufacturing Co., Warco Motor Graders, Contractors Machinery Co., and now the Schield Bantam Co.

Viber Co., Burbank, Calif., has appointed J. A. Robinson as sales manager. Robinson will work with distributors of high frequency internal and external vibrators across the nation, with particular attention to the market east of the Mississippi. Before joining Viber, Robinson was five years with the McGraw-Hill Co., serving as western editor of *Electrical World*. Prior to that he had been five years in the eastern factories and San Francisco offices of General Electric. He is an electrical engineering graduate of the University of California.

Warner & Swasey Co., Cleveland, O. has appointed the following firms distributors for the Gradall Earthmover: Leonard Motor Co., Albuquerque, N. M., for the State of New Mexico; Rocky Mountain Machinery Co., Salt Lake City, Utah, for the State of Utah and bordering counties in Idaho and Wyoming; J. D. Evans Co., Rapid City and Sioux Falls, S. D., for the State of South Dakota, Huggard Equipment Co., Winnipeg, Canada, for the Province of Manitoba; and C. B. Stilwell Equipment, Inc., Omaha, Neb. for Nebraska and western Iowa. The truck-mounted machine, all-hydraulically operated, performs a variety of precision earthmoving and construction jobs, replacing an average of fifteen hand laborers.

Macwhyte 6X25F PREformed Monarch Whyte Strand Wire Rope with I. W. R. C.

How many moving parts?

- In this particular rope construction there are 199 individual wires. Each is a carefully designed "moving part."
- Outside wires are one size. Inside wires are another size. Core and filler wires are still other sizes.
- Altogether, 8 different sizes of wire are used, and each has a specified strength, toughness and flexibility.
- Macwhyte has specialized in the manufacture of wire rope like this for over half a century.
- To assure highest quality, all stages of wire manufacture and rope fabrication are closely controlled.
- An exact "breathing space" between each wire is provided in order to increase flexibility.
- Each wire is protected with a film of lubricant that is force-fed *cold* during the fabricating.
- Since any piece of wire rope is a complicated piece of machinery, precision is as important in its manufacture as in the making of a fine watch.
- In designing and manufacturing its thousand and one wire ropes, Macwhyte exercises all the special care that assures long service and low cost to you. May our engineers recommend the right rope for *your* equipment?

MACWHYTE WIRE ROPE

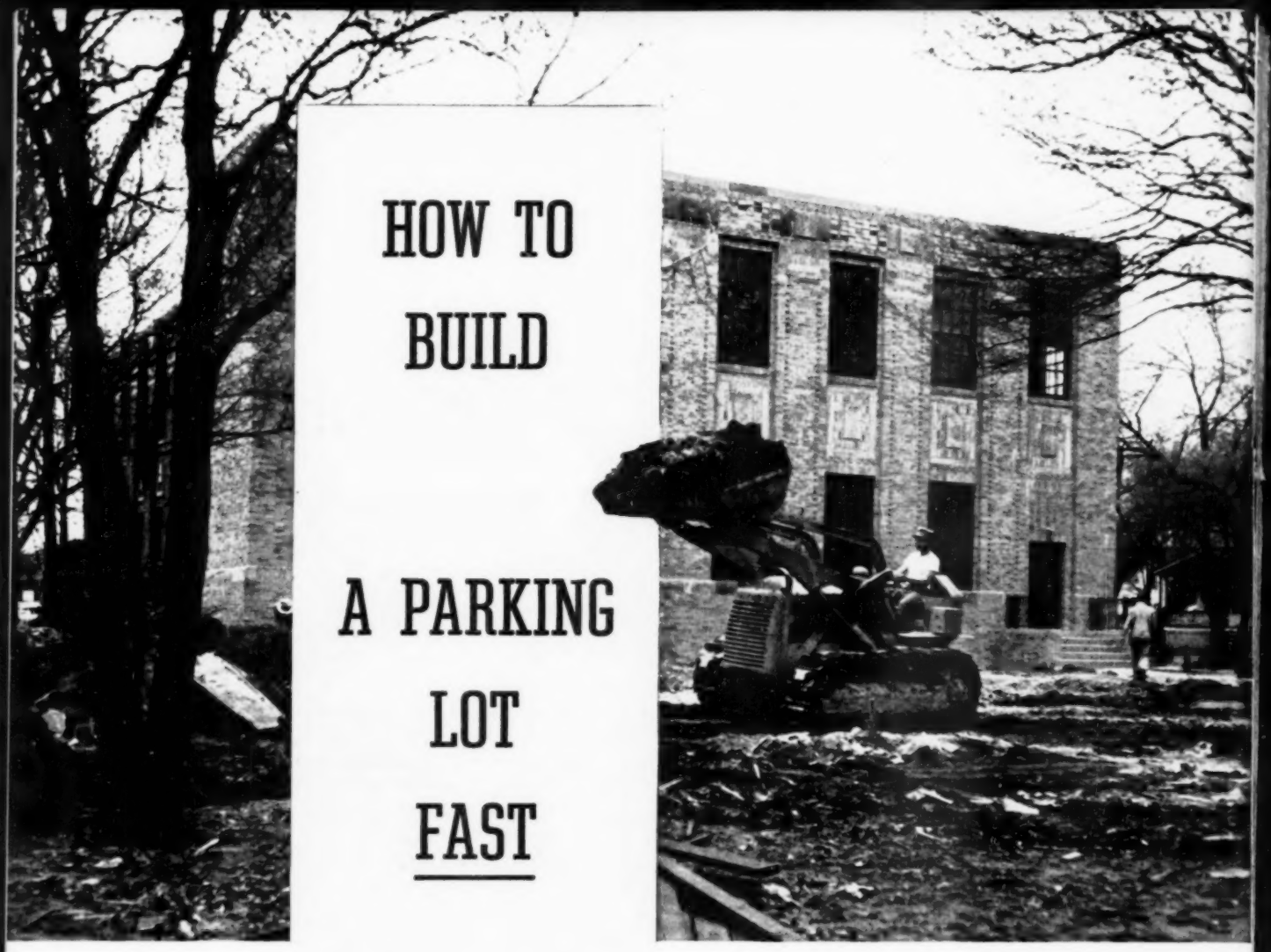
THE RIGHT ROPE FOR YOUR EQUIPMENT

Ask for G-15 Handbook

1032

MACWHYTE COMPANY

2903 Fourteenth Avenue, Kenosha, Wis. Manufacturers of Internally Lubricated PREformed Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies, Monel Metal, Stainless Steel Wire Rope and Wire Rope Assemblies. Mill depots: New York • Pittsburgh • Chicago • St. Paul • Fort Worth • Portland • Seattle • San Francisco • Los Angeles • Distributors throughout U.S.A.



HOW TO BUILD A PARKING LOT FAST

This busy Caterpillar Diesel HT4 Shovel is clearing land in a hurry for an Ohio Bell Telephone Company parking lot in Cleveland. Contractor is Henry Miesz of South Euclid, Ohio.

The versatile Cat Shovel can get in and out of places bigger specialized equipment can't touch. Because its bucket is wider than any part of the tractor, it works close to walls and trees. The operator enjoys perfect visibility, too: all hydraulic connections are completely enclosed—no hoses or plumbing to interfere. It's a fast shovel . . . one that can raise and dump its bucket at the same time.

There's plenty of strength built into this machine, too. Its frame and mounting and lift arms are all welded and cross braced. The bucket has a heat-treated high carbon steel cutting edge. And there are 11,250 pounds of push at that cutting edge.

Like all Caterpillar machines, this shovel is a rugged, dependable, economical piece of equipment. Your Caterpillar Dealer will gladly demonstrate its advantages. He's the man to see, too, for service and for the genuine Caterpillar parts which guarantee you the kind of quality that's built into every one of these big yellow machines.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT